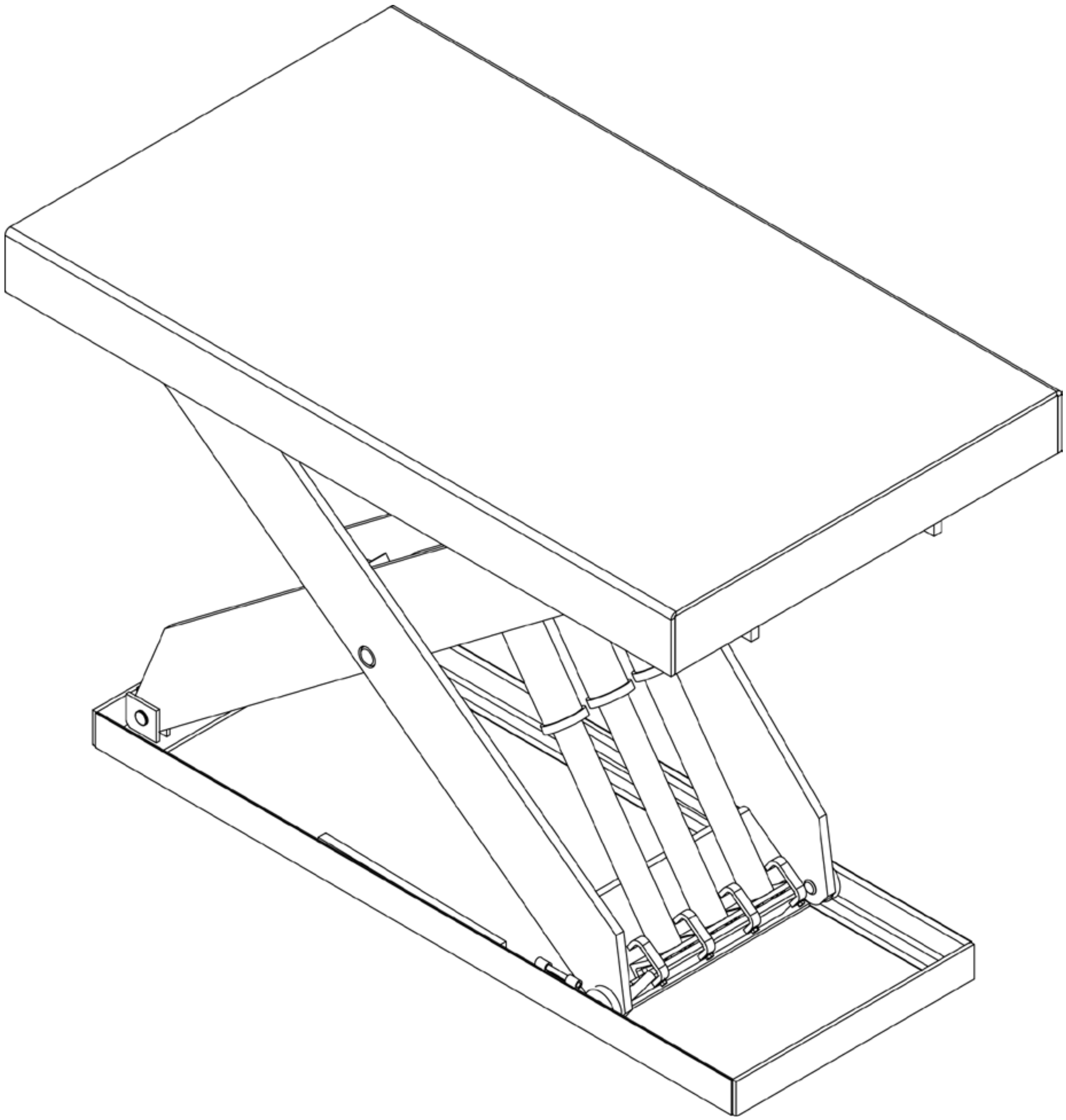
INSTALLATION, OPERATION AND SERVICE MANUAL

TITAN SCISSORS LIFT



P.O. Box 1058 • 1058 West Industrial Avenue • Guthrie, OK 73044-1058 • 888-811-9876
405-282-5200 • FAX: 405-282-3302 • www.autoquip.com

Item #830TIT

Version 2.0
1/2012

1. INTRODUCTION AND WARRANTY

1.1 Introduction

Please read and understand this manual prior to installation or operation of this lift. Failure to do so could lead to property damage and/or serious personal injury. If you have any questions, call a local dealer or *Autoquip Corporation* at 1-888-811-9876 or 405-282-5200.

Please record the following information and refer to it when calling your dealer or Autoquip.

Model Number:________________Serial Number: ___________________

Installation Date _____/_____/_____

1.1.1 Identification

When ordering parts or requesting information or service on this lift, PLEASE REFER TO THE MODEL AND SERIAL NUMBER. This information is on a nameplate attached to the leg assembly. Replacement parts are available from a local *Autoquip* distributor.

1.1.2 Inspection

Upon receipt of lift, perform a visual inspection to determine whether the lift has been damaged in transit. Any damage found must be noted on delivery receipt. In addition to this preliminary inspection, carefully inspect lift for concealed damage. Any concealed damage found that was not noted on delivery receipt must be reported in writing to the delivering carrier within 48 hours.

Use the following checklist for inspection of lift:

1. Examine entire unit for any signs of mishandling. Carefully check power unit and controls.

2. Thoroughly examine all connections, making sure they have not vibrated loose during transit, and inspect wiring for any signs of damage.

3. After installation, raise lift and inspect base frame, platform, scissors assembly, and cylinder plumbing connections.

1.1.3 Planned Maintenance Program

A local *Autoquip* representative provides a Planned Maintenance Program (PMP) for this equipment using factory-trained personnel. Call a local representative or *Autoquip Corporation* at 1-888-811-9876 or 405-282-5200 for more information.

1.2 Responsibility Of Owners/Users

1.2.1 Deflection

It is the responsibility of user/purchaser to advise manufacturer where deflection may be critical to the application.

1.2.2 Inspection & Maintenance

Lift must be inspected and maintained in accordance with Autoquip's operating/maintenance (O&M) manual and with other applicable safe operating practices.

1.2.3 Removal From Service

Any lift not in safe operating condition such as, but not limited to, excessive leakage, missing parts or fasteners, any bent or cracked structural members, cut or frayed electric, hydraulic, or pneumatic lines, damaged or malfunctioning controls or safety devices, etc. shall be removed from service until it is repaired to the original manufacturer's standards.

1.2.4 Repairs

All repairs must be made by a qualified technician in conformance with Autoquip's instructions.

1.2.5 Operators

Only trained personnel and authorized personnel shall be permitted to operate lift.

1.2.6 Before Operation

Before using lift, operator must:

- Read and/or had explained, and understood, manufacturer's operating instructions and safety rules.
- Inspect lift for proper operation and condition. Any suspect item must be carefully examined and a determination made by a qualified person as to whether it constitutes a hazard. All items not in conformance with Autoquip's specification must be corrected before operating lift.

1.2.7 During Operation

Use lift in accordance with Autoquip's O&M manual.

- Do not overload lift.
- Verify all safety devices are operational and in place.
- Autoquip warrants this lift for 60,000 cycles each warranty year. This number of cycles represents normal, single shift duty. Exceeding this number of cycles shortens life of lift and length of your warranty.

1.2.8 Modifications Or Alterations

Modifications or alterations to this equipment may be made only with written permission of Autoquip. Unauthorized modification or alteration will void warranty.

1.3 Warranty

The user is solely responsible for using this equipment in a safe manner and observing all of the safety guidelines provided in the Owner's Manual and on the warning labels provided with the lift. If you are unable to locate either the manual or the warning labels, please contact Autoquip or access www.autoquip.com for replacement downloads or information.

Autoquip Corporation expressly warrants that this product will be free from defects in material and workmanship under normal, intended use for a period of Two (2) Years for Labor and all electrical, mechanical, and hydraulic components, parts or devices, and warrants the structure of the lift against breakage or failure for a period of Five (5) years. The warranty period begins from the date of shipment. When making a claim, immediately send your dealer or Autoquip notice of your claim. All claims must be received by Autoquip within the warranty time period. The maximum liability of Autoquip, under this Limited Warranty, is limited to the replacement of the equipment.

This warranty shall not apply to any Autoquip lift or parts of Autoquip lift that have been damaged or broken in transit/shipping, or due directly or indirectly to misuse, abuse, vehicle impact, negligence, faulty installation, fire, floods, acts of God, accidents, or that have been used in a manner contrary to the manufacturer's limitations or recommendations as stated in the manual, or that have been repaired, altered or modified in any manner outside of Autoquip Corp's manufacturing facility or which have not been expressly authorized by Autoquip.

Autoquip Corporation makes no warranty or representation with respect to the compliance of any equipment with state or local safety or product standard codes, and any failure to comply with such codes shall not be considered a defect of material or workmanship under this warranty. Autoquip Corporation shall not be liable for any direct or consequential damages resulting from such noncompliance.

Autoquip Corporation's obligation under this warranty is limited to the replacement or repair of defective components at its factory or another location at Autoquip Corp's discretion at no cost to the owner. This is owner's sole remedy. Replacement parts (with exception of electrical components) will be warranted for a period of ninety (90) days. Except as stated herein, Autoquip Corporation will not be liable for any loss, injury, or damage to persons or property, nor for direct, indirect, or consequential damage of any kind, resulting from failure or defective operation of said equipment. All parts used to replace defective material must be genuine Autoquip parts in order to be covered by this Limited Warranty.

AUTOQUIP CORP
P.O. Box 1058, Guthrie, OK 73044-1058
Telephone: (888) 811-9876 · (405) 282-5200
Fax: (405) 282-3302
www.autoquip.com

2. SPECIFICATIONS

2.1 Model Number Description

The table below describes the numbering significance of the model numbers. For example, if the model number is 48C6F45EXW, use the table to determine the meaning of the numbering and lettering system.

48	C	6	F	45	EXW
Travel	Number Of Cylinders	Leg Set Family	Stroke Of Cylinders	Capacity In Hundreds	Special Notation
	A = 1 B = 2 C = 3		D = 9.75” E = 14.25” F = 20”		EXW = Extra Wide DH = Double High DW = Double Wide

2.2 Lift Specifications

There are many custom designs whose specifications may vary from those published for standard models. Please consult the specific General Arrangement (GA) Drawing to obtain the specifications for application-specific designs.

2.3 Load Capacity

Load capacity rating is stamped on a metal nameplate attached to lift. This figure is a net capacity rating for a lift furnished with a standard platform. If optional items are installed on lift after leaving manufacturer, deduct weight of these from load rating to obtain net capacity.

Do not exceed rated capacity of lift. Loading lift beyond its rated capacity is unsafe, will shorten operational life of lift, and will void warranty.

2.4 Unbalanced Loading

The stabilization provided is basically for balanced loads. If special attachments extend beyond the length and/or width dimensions of platform, end and/or side load capacity is reduced 2% for each one-inch extension from center. If load is rolling onto platform (in any but fully-lowered position) end and/or side load capacity is reduced by dividing the rated end/side load by 1.50 to establish an available “axle” load.

2.5 Pump Pressure

This lift incorporates a unique, positive displacement pump. Therefore, standard factory models of same manufacture cannot replace it.

Pump can operate efficiently at intermittent pressures up to 3200 PSI and continuous duty to 2500 PSI. The factory installed safety relief valve is factory-set to stay within parameters of pump and lift requirements.

2.6 Lift Duty

Autoquip standard lifts typically include intermittent duty motors and are designed to “cycle” (one complete “up” and one complete “down” lift operation) no more frequently than every two minutes – or approximately 60,000 times (cycles) per year. This is considered “normal” duty.

It is the responsibility of the user to notify Autoquip whenever a specific application is likely to demand “above normal” duty from lift. Above normal duty typically requires supplemental design features to enhance serviceable life of lift and to avoid loss of warranty.

3. SAFETY

3.1 Safety Signal Words

This Owner's Manual covers Titan Lift models produced by Autoquip. Before installing, operating or servicing lift, you must read, understand and follow the instructions and safety warnings in this manual. Your lift may not be equipped with some optional equipment shown in this manual.

The safety information in this manual is denoted by the safety alert symbol: ^

The level of risk is indicated by the following signal words.

^ DANGER

DANGER – Indicates a hazardous situation, which, if not avoided, will result in death or serious injury.

^ WARNING

WARNING – Indicates a hazardous situation, which, if not avoided, could result in death or serious injury.

^ CAUTION

CAUTION – Indicates a hazardous situation, which, if not avoided, could result in minor or moderate injury.

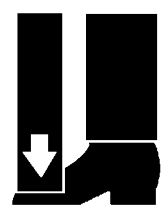
NOTICE

NOTICE – Indicates a situation that could result in damage to the lift or other property.

3.2 Installation

^ WARNING

Do not install lift in a pit unless pit has a bevel toe guard or other approved toe protection. A shear point can exist which can cause severe foot injury.



Lift platforms traveling below floor levels may create a toe hazard as load passes top edge of pit. This may require guarding in accordance with Federal Regulations. Guarding must be installed prior to operating lift.

^ WARNING

Prevent serious injury or death.

Depending on model, weight of lift ranges from 1500 – 4450 lbs.

Use a properly rated lifting device to move and install lift.

3.3 Operation

^ WARNING

Prevent serious injury or death.

Scissor lifts are designed for a specific load and application. Do not change load or application from original design.

Overloading, or uneven loading, could result in load instability and cause serious personal injury.

Stay clear of lift while lift is in motion.

Never stand, sit or ride on lift.

^ WARNING

Prevent serious injury or death.

Lifts which travel to an elevation above floor level where distance between floor and the underside of lift platform exceeds 60" must have the scissors mechanism guarded per ANSI MH29.1.

3.4 Hydraulics

Fluids can be hazardous. Before servicing lift, check Material Safety Data Sheet (MSDS) to understand the product, safe handling procedures, and first aid measures relating to product. Follow this information when servicing or repairing lift.

Do not drain or pour any fluids or lubricants into ground. Check with local environmental agencies, recycling centers, or your Autoquip dealer for correct disposal information.

^ CAUTION

Any time velocity fuses have been tripped, investigate cause of trip and verify necessary corrective actions have been taken prior to operation of lift.

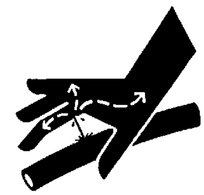
^ WARNING

Prevent serious injury or death.

Do not attempt to remove Hydraulic Velocity Fuse (HVF) until maintenance device securely supports lift and all hydraulic pressure has been relieved.

HVF is attached to elbow fitting in pressure port of cylinder. Do not use a swivel fitting between HVF and cylinder. If HVF is installed improperly, it will not lock up in event of a hydraulic line failure.

^ WARNING



Pressurized fluids can penetrate the skin.

Hydraulic hoses can fail from age, damage and exposure.

Do not search for hydraulic leaks without body and face protection. A tiny, almost invisible leak can penetrate the skin, thereby requiring immediate medical attention.

Use wood or cardboard to detect hydraulic leaks, never your hands.

^ WARNING



Spilled fluids and lubricants may be slippery and may also present a fire hazard.

Clean up spilled fluids and lubricants.

3.5 Maintenance

^ WARNING



Prevent serious injury or death.

Disconnect and/or lock out electrical supply to power unit prior to any maintenance being performed.

^ WARNING



Prevent serious injury or death.

Never go under lift platform until load is removed and scissors mechanism is securely blocked in raised position with maintenance devices.

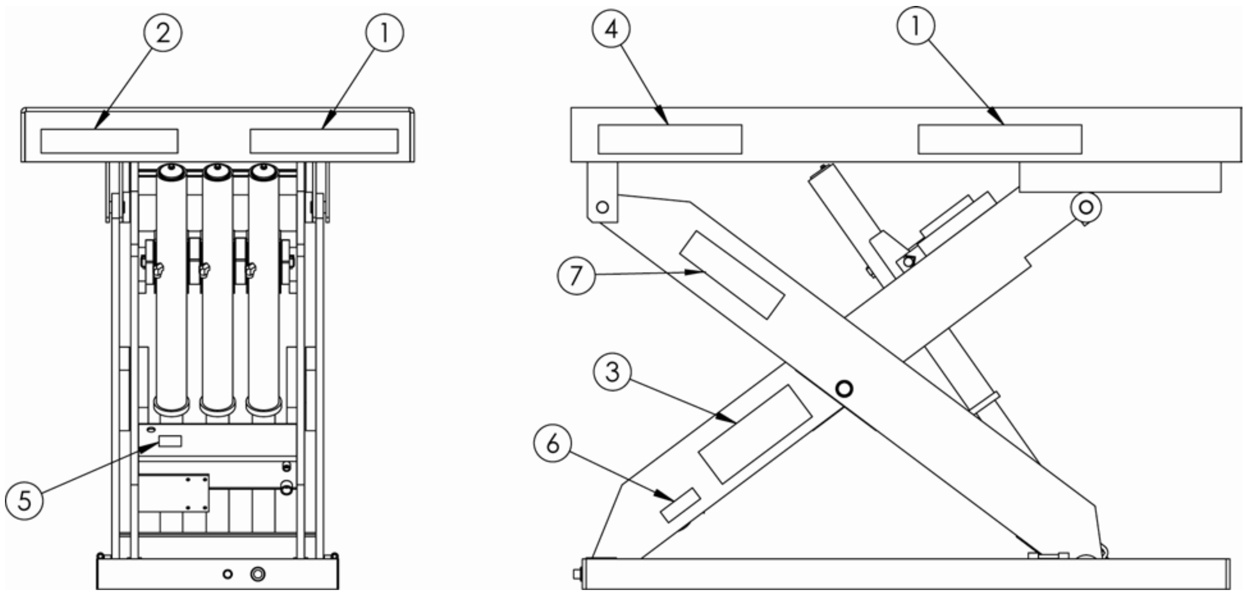
3.6 Modifications

^ WARNING

Prevent serious injury or death.

Do not modify lift. Autoquip cannot foresee and is not responsible for injury or damage which results from unauthorized modifications or misuse of lift.

3.7 Labels





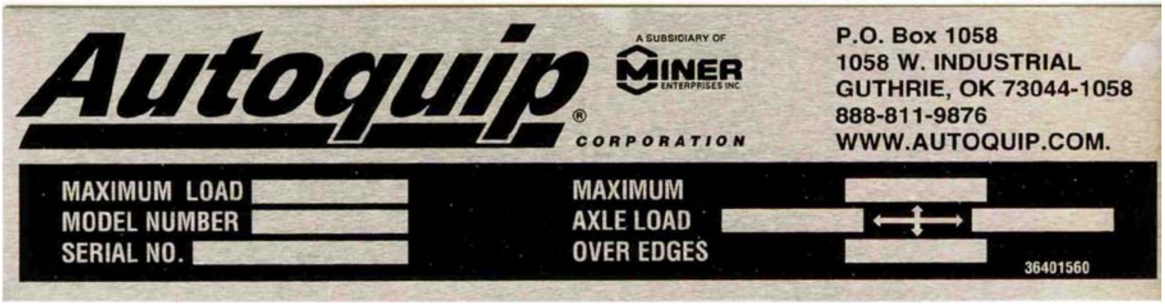
1 – 36430050 If Not Equipped With Handrails



1 – 36430050M If Equipped With Handrails, Cut As Shown



2 – 36401487



3 – 36401560



4 – 36401586



5 – 36400661



6 – 36405695 For Lifts Equipped With Up-Stop Valves.



7 – 36403343



N/S – 36403715 If Equipped With Handrails

JOB NO. MODEL NO.

MOTOR VOLTS CYCLE PHASE

CONTROL VOLTS

WIRE CODE

BLACK –

WHITE –

RED–

ORANGE–

BLUE–

GREEN–

TO OBTAIN PROPER ROTATION ON 3 PHASE UNITS-RUN PUMP MOTOR 5 TO 10 SECONDS ONLY- IF LIFT DOES NOT RISE CHANGE ROTATION. PN 364-0334-3

N/S – 36403343

^ WARNING

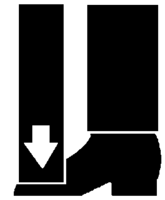
To protect against death or serious injury, all labels must be on lift and must be legible.

If any of these labels are missing or cannot be read, call Autoquip for replacement labels.

4. INSTALLATION

4.1 Pit Installation

^ WARNING

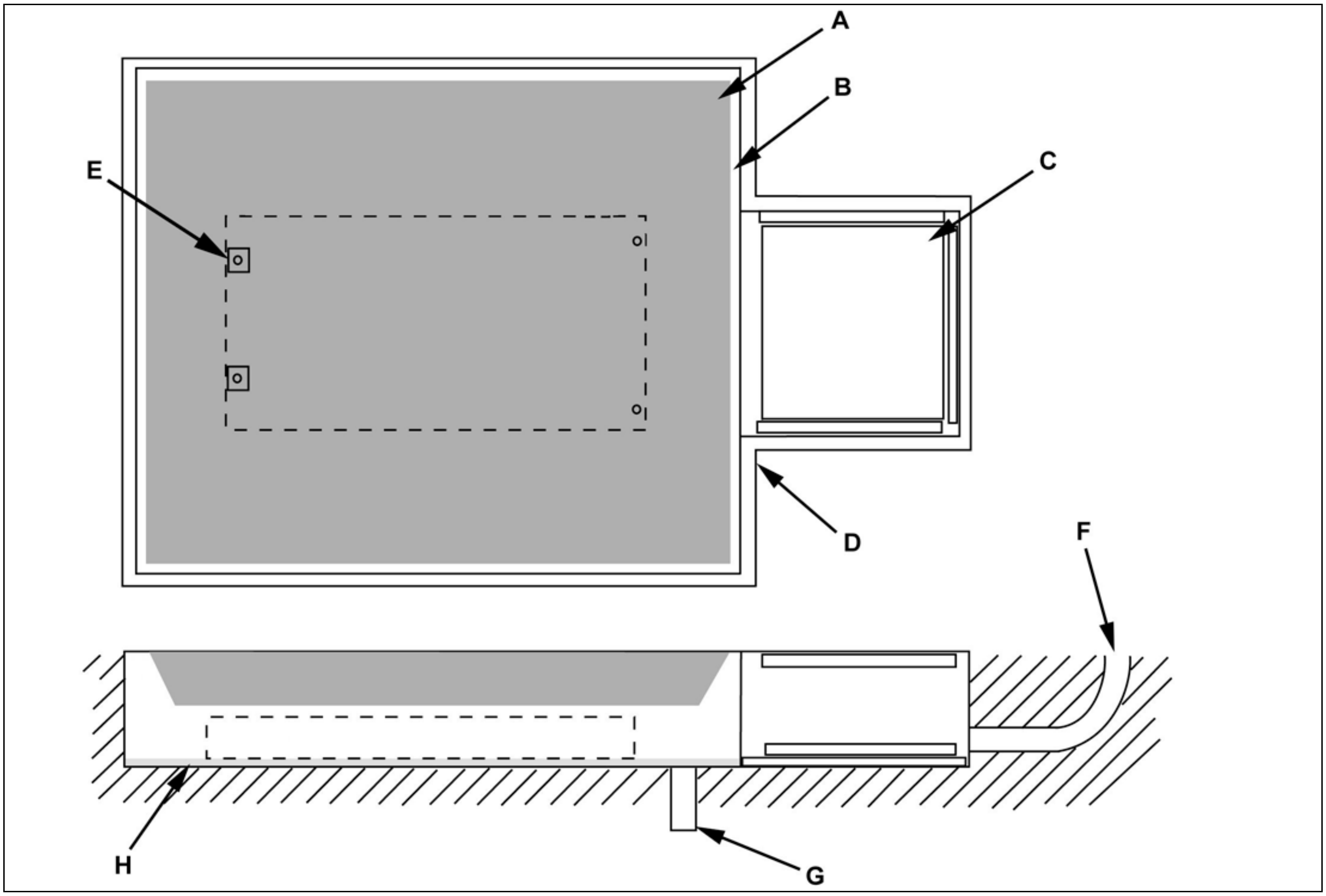


Do not install lift in a pit unless pit has a bevel toe guard or other approved toe protection. A shear point may exist which can cause severe foot injury.

Lift platforms traveling below floor levels may create a toe hazard as load passes top edge of pit. This may require guarding in accordance with Federal Regulations. Guarding must be installed prior to operating lift.

1. Check pit dimensions. Pit must be 2" longer and 2” wider than lift platform to allow a 1” gap between platform and pit. Pit depth should allow ½” for shims or grout.

2. Conduit (F) diameter must be a minimum of 2".



A – Lift Platform
B – 1” Gap Between Deck And Pit Wall
C – Pit Access Hatch, Optional, Installed By Customer
D – Pit Curb Angle, Suggested Min. L2” x 2” x ¼”, Cust. Inst.
E – Lift Anchor Points (4)
F – 2” Min. Conduit, Cust. Inst.
G – Suitable Pit Drain, Cust Inst.
H – ½” Grout Under Base

3. Verify installation area is clean before starting. Check mounting surface of pit floor with a level or straight edge. If floor is not level, add shims or grout under entire perimeter of base to achieve a level and flat base installation. A level base is essential for proper wheel tracking and smooth lift operation.

^ WARNING

Prevent serious injury or death.

Depending on model, weight of lift ranges from 1000 – 5000 lbs.

Use a properly rated lifting device to move and install lift.

4. Lower lift into pit and check for proper height. Lift must be solid and flush with pit curb angle framing (D). If needed, shim to desired height. DO NOT “spot” shim. Shim along full length of frame. This will prevent frame from sagging under load.

^ WARNING

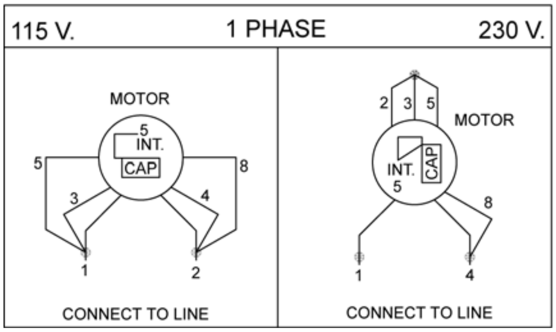


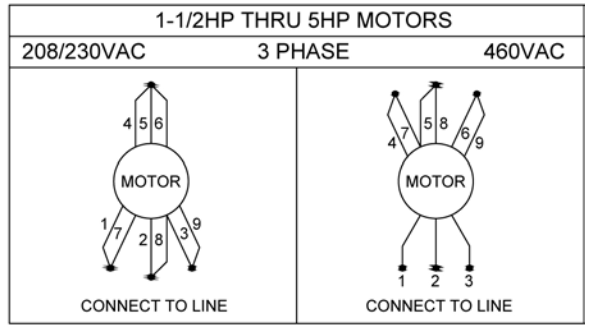
Prevent serious injury or death.

Electrical service installation must be performed by a licensed electrician and conform to all local and national electrical codes.

NOTE: For larger horsepower motors, consult factory.

HP and Voltage	Full Load Amperages	
1/2 HP: **115 V** /60 CY/1 PH (36S15)	**115 Volts** = 15.0 Amps	
3/4 HP: **115 V** /60 CY/1 PH	**115 Volts** = 16.6 Amps	
3/4 HP: **230 V** /60 CY/1 PH	**230 Volts** = 8.3 Amps	
3 HP: **115 / 208 / 230V** /60 CY/1PH Heavy Duty Motor (Not Intermittent)	**115 V** = 33.6 Amps	**208/230V**=16.8 Amps
5 HP: **230 V** /60 CY/1 PH Heavy Duty Motor (Not Intermittent)	230 Volts = 23.0 Amps	
1-1/2 HP: **208 / 230 V** /60 CY/3 PH	208 / 230 V= 5.3 Amps	
1-1/2 HP: **460 V** /60 CY/ 3 PH	**460Volts** = 2.85 Amps	
5 HP: **208 / 230 V** /60 CY/3 PH Intermittent Duty Motor	**208 V**=15.8 Amps	**230 V**=14.8 Amps
5 HP: **460 V** /60 CY/3 PH Intermittent Duty Motor	**460 Volts** = 7.4 Amps	
5 HP: **208 / 230 V** /60 CY/3 PH Heavy Duty Motor	**208 V**=16 Amps	**230 V**=15.2 Amps
5 HP: **460 V** /60 CY/3 PH Heavy Duty Motor	**460 V**=7.6 Amps	





5. Temporarily connect electrical service and hydraulic hoses.

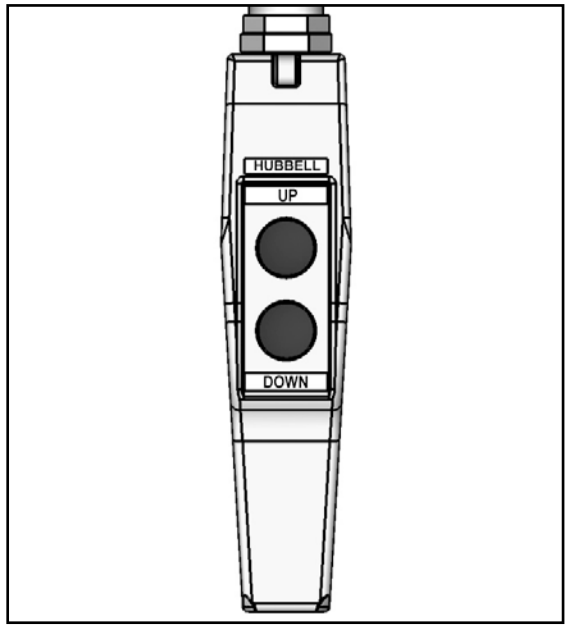
6. Fill hydraulic reservoir with proper type and volume of fluid.

7. Press “UP button and raise lift one foot.

8. Press “DOWN” button to fully lower lift. Continue to hold down button for 60 seconds. Repeat procedure five to seven times to bleed air out of hydraulic system.

9. Raise and lower lift as needed to make positioning adjustments.

10. Adjust platform to a clearance of 1” minimum around perimeter between platform and pit angle.



^ WARNING

NEVER go under a raised lift platform until load is removed and lift is securely blocked in raised position with maintenance devices.

See "Maintenance Device" section of this manual.

Lock-out/tag-out power source.



11. Base frame of lift has pre-drilled holes for anchoring floor. Anchor lift to floor. Lifts with oversize platforms have minimum pull out requirements of 2,000 lbs. for each anchor. See “Shimming And Anchoring Lift To Concrete”.

12. Make permanent electrical and hydraulic connections and operate lift through a few cycles.

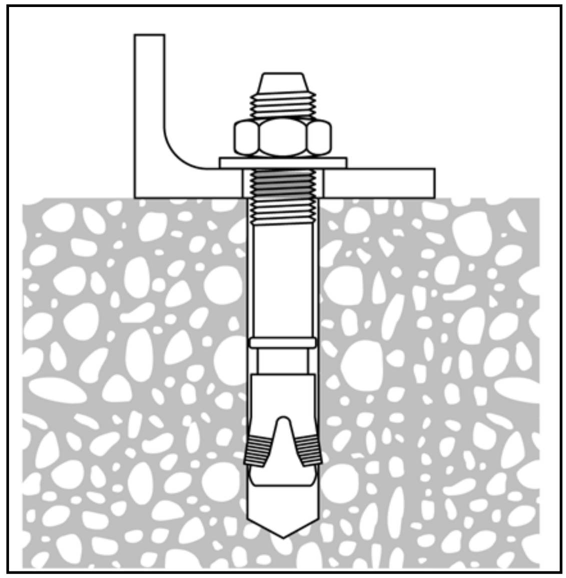
13. Clean up debris and spilled oil from area. Dispose of oil in an environmentally safe manner.

14. Touch-up paint is available from *Autoquip* for repair of damaged paint surfaces.

15. Train personnel on lift operation, all safety features and procedures.

4.2 Shimming And Anchoring Lift To Concrete

Recommended concrete anchor bolts are: HILTI "Kwik-Bolt", Molly Parabolt or similar.



1. Verify lift is positioned correctly.
2. Drill holes in concrete as specified by anchor bolt manufacturer.
3. Install and tighten anchors as specified by anchor bolt manufacturer.
4. After lift has been aligned, leveled and shimmed, and anchors have been installed, pour grout under entire base frame.
5. When grout has set and cured, tighten nuts on anchor bolts.
6. Route hydraulic hose or electrical cord through conduit in pit wall.

4.3 Remote Power Unit Installation

1. The remote power unit is to be located in an area protected from the elements and should be installed prior to the lift to facilitate lift operation during installation into the pit.
2. The remote contractor power unit is equipped with power unit mounting brackets and can be wall or floor mounted using these brackets. If equipped with a vertical power unit, optional power unit mounting brackets must be used for wall mounting.
3. The electrical work is to be done in accordance with local codes by a qualified electrician. See the "Maintenance" section for the standard wiring diagram.
4. If permanent electrical work is not complete, some means of temporary power with an on/off device for the motor will be required.
5. Fill the reservoir with oil per instructions in the "Maintenance" section.

4.4 Power Unit Wiring

4.4.1 Intermittent Remote Power Unit

1. The Intermittent Power Units utilize a 1-½ or 5 HP / 208-230-460 Volt / 60 hertz / 3 phase "Super-Torque" intermittent duty motor with (one full lift cycle per 2 minute period) driving a high pressure positive displacement pump assembly with an internal relief valve, check valve and down solenoid valve.
2. Because an Autoquip "Super-Torque" motor actually delivers substantially more horsepower than the nameplate rating, it must always be wired for heavier current-draw than standard motors of the same nameplate rating. However, because of the "Super-Torque" motor's starting efficiency and

superior running characteristics, circuit components do not have to be as large as for standard motors of equal delivered horsepower.

4.4.2 Heavy Duty Remote Power Unit

1. The Vertical 'HD' Power unit utilizes a 5 HP/ 208-230-460 Volt / 60 hertz / 3 phase Heavy Duty motor, (with a 30 minute continuous duty rating). The power unit is coupled with a high-pressure positive displacement gear pump, and Autoquip Corporation's patented Deltatrol valve assembly.

2. The motor connection diagram should be referenced in connecting the motors to a power source. Remember that heavy wire must be used all the way to the power source.

4.5 Accordion Skirt Installation

1. Position platform in raised position. Engage maintenance locks (see "Lift Blocking Instructions" section). Position accordion with weight rod pocket at bottom and mounting collar at top. The breathable material when provided must be positioned at top of skirt with mounting collar.

2. Slip skirt over end of platform. Turn skirt as required to slide over other end of platform and leg assembly. The skirt should be in position under platform while enveloping base assembly.

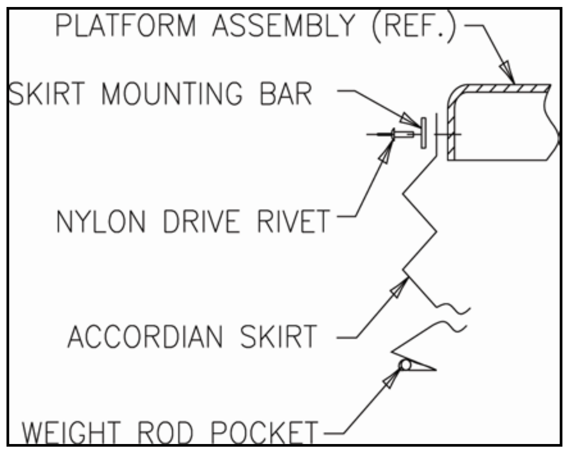
3. Select from the following mounting configurations.

Mounting Accordion Skirt On Platform Side

Raise one side of skirt along with a skirt-mounting bar (1/8" x 1") to (1) side of platform. When possible, center skirt-mounting collar and skirt-mounting bar (1/8" x 1") on platform side.

Align pre-drilled holes in side of platform with skirt-mounting bar holes and punch holes in skirt-mounting collar.

Push a nylon drive rivet through each hole in skirt-mounting bar. Hammer aluminum pin into rivet until flush with rivet head. Repeat mounting process for remaining sides of accordion skirt.

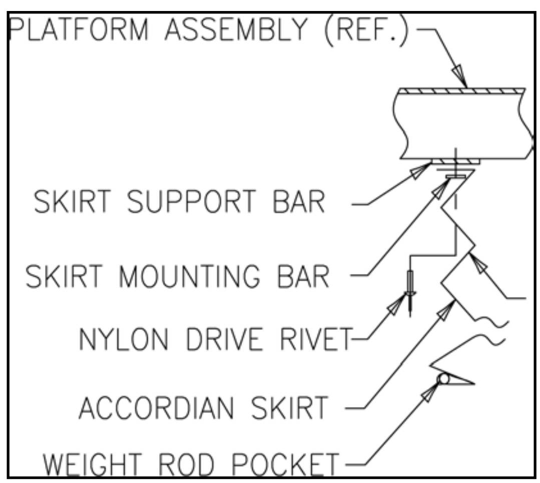


Mounting Accordion Skirt Under Platform

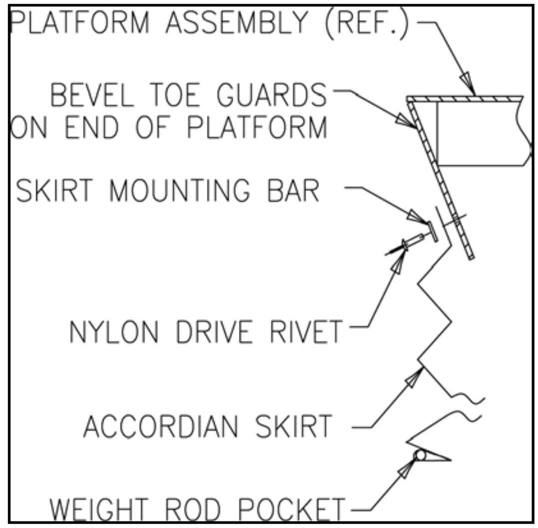
Raise one side of skirt along with a skirt-mounting bar (1/8" x 1") to underside of platform skirt support bar. When possible, center skirt-mounting collar and skirt-mounting bar (1/8" x 1") on platform support bar.

Align pre-drilled holes in skirt support bar with skirt-mounting bar holes and punch holes in skirt-mounting collar.

Push a nylon drive rivet through each hole in skirt-mounting bar. Hammer aluminum pin into rivet until flush with rivet head. Repeat mounting process for remaining sides of accordion skirt.



Mounting Accordion Skirt On Bevel Toe Guard



Raise one side of skirt along with a skirt-mounting bar (1/8” x 1”) to side of bevel toe guard. When possible, center skirt-mounting collar and skirt-mounting bar (1/8” x1”) on platform bevel toe guard.

Align pre-drilled holes in bevel toe guard with skirt-mounting bar holes and punch holes in skirt-mounting collar.

Push a nylon drive rivet through each hole in skirt-mounting bar. Hammer aluminum pin into rivet until flush with rivet head. Repeat mounting process for remaining sides of accordion skirt.

4. Install weight rods into weight rod pockets at bottom of accordion skirt. Install spring tempered wire rods into pocket of black convolutions.

5. OPERATION

5.1 Raise And Lower Lift

^ WARNING

Prevent serious injury or death.

Before operating lift, all personnel interacting with lift must read, understand and follow instructions and safety warnings in this manual.

NOTICE

Adjusting safety relief valve may result in premature motor failure.

Do not adjust safety relief valve.

Raising loads exceeding rated capacity of lift may result in excessive wear and damage to lift.

^ WARNING

Prevent serious injury or death.

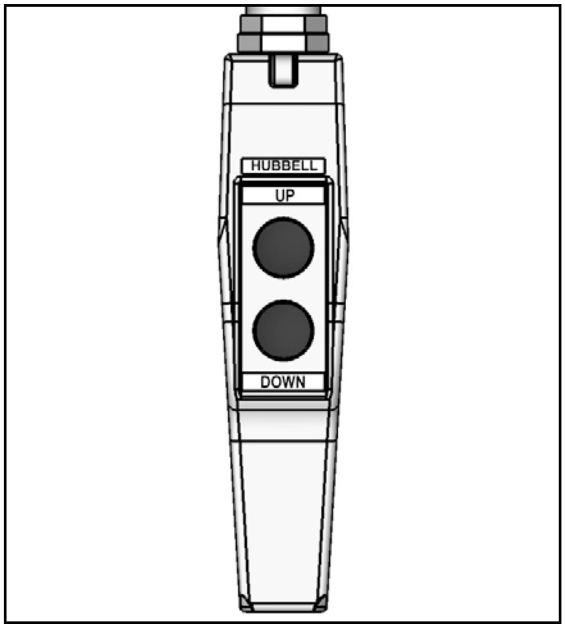
Personnel must maintain a safe operating distance of at least 36” any time lift is operated.

1. Verify all personnel are away from lift.
2. Press “UP” button to raise lift. Release button when lift reaches desired position.

NOTICE

Do not operate lift on relief for more than a few seconds. When on relief, valve will make a squealing sound.

3. Press "DOWN" button to lower lift. Release button when lift reaches desired position.



6. MAINTENANCE

6.1 Maintenance Devices

^ WARNING



NEVER go under a raised lift platform until load is removed and lift is securely blocked in raised position with maintenance devices.

Lock-out/tag-out power source.

This procedure describes the only factory-approved method of working under a lift. Follow these instructions <u>EVERY</u> time you plan to reach or crawl beneath the lift to perform service or maintenance – no matter how momentary that might be.

If the factory-provided maintenance devices are damaged or missing, stop immediately and consult the factory for assistance. The manufacturer is not liable for your failure to use the approved maintenance devices and procedures that have been provided.

1. All loads must be removed from the lift prior to engaging the maintenance devices. These devices are designed to support an unloaded lift only. Failure to remove the load from the lift prior to blocking could cause the failure of the maintenance devices and allow the lift to fall unexpectedly. This can result in personal injury or death.

2. Raise the lift to its fully raised position. If you do not, the maintenance devices may not be able to be placed properly in their designed blocking position.

3. The lift will be provided with two (2) maintenance locks stored on the outside of the base frame. The locks must be securely placed inside the base frame and thus in the roller path of the lift **(See Figure 6.1)**.

4. Lower the lift platform until the leg rollers make contact with both maintenance locks. Re-check to ensure that both devices are fully and properly engaged with the leg rollers. If both left and right maintenance locks are not fully engaged the lift could fall unexpectedly.

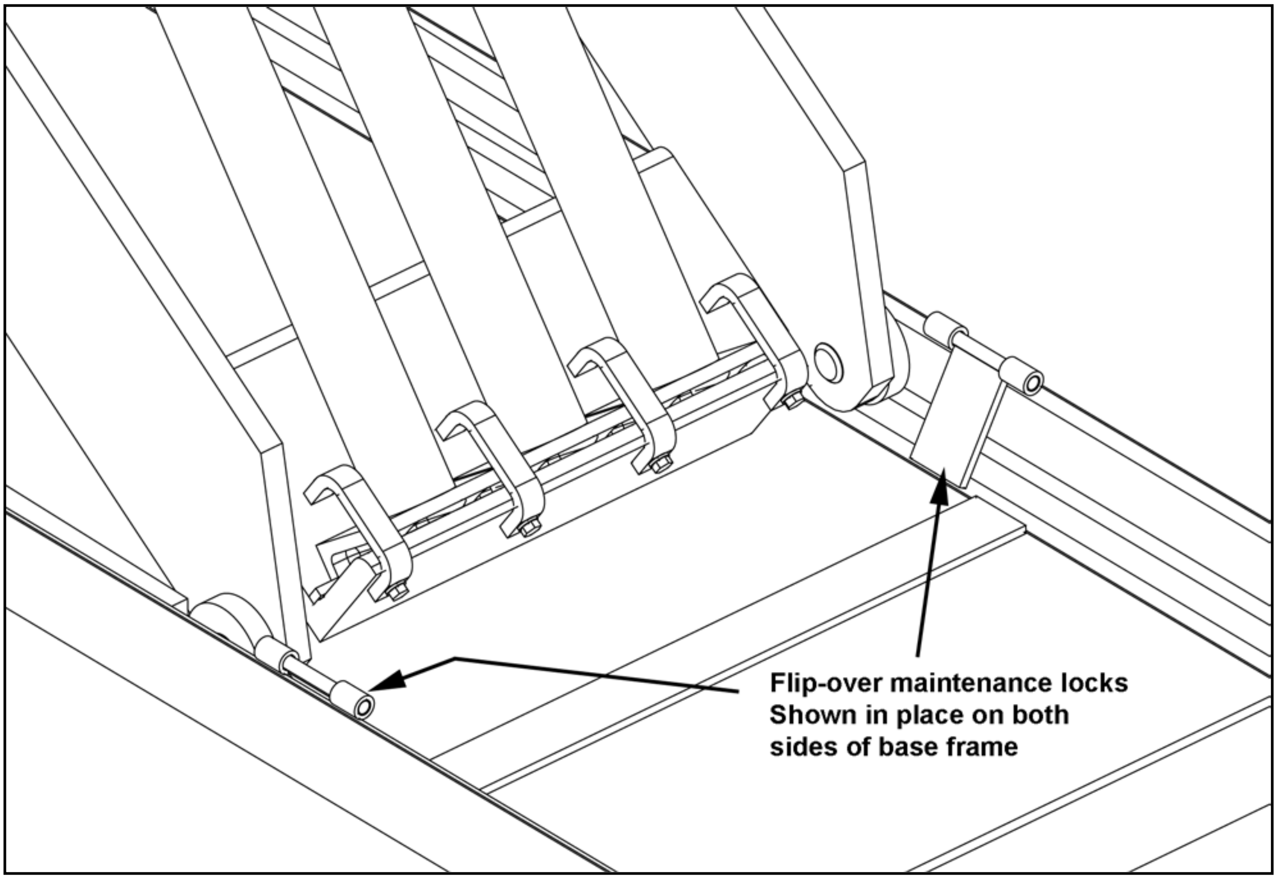


Figure 6.1

^ DANGER

If for any reason you are unable to lower the lift completely onto the maintenance devices, stop immediately and consult the factory. Failure to properly use the factory approved maintenance devices could result in severe injury or death.

5. Once the maintenance devices are properly and securely engaged, continue to press the down button, valve or switch for an additional 5-10 seconds to relieve all pressure in the hydraulic system (it could take longer in a pneumatic system).

^ WARNING

Failure to relieve operating system pressure could result in the sudden and unexpected release of high-pressure fluids (or air) during maintenance and/or repair of the lift, resulting in severe injury or death.

6. Follow OSHA electrical lock-out/tag-out procedures. Disconnect and tag all electrical and/or other power sources to prevent an unplanned or unexpected actuation of the lift.

7. Once inspection or work is complete, reverse the performance of the steps above to raise the lift off the maintenance devices and place the devices back into their designated storage positions.

^ DANGER

HIGH VOLTAGE!! – Disconnect and/or lock out the electrical supply to the power unit per OSHA regulations prior to any installation or maintenance being performed.

6.2 Routine Maintenance

^ WARNING



Prevent serious injury or death.

Lock-out/tag-out power source prior to any maintenance being performed.

^ WARNING



Prevent serious injury or death.

Never go under lift platform until load is removed and scissors mechanism is securely blocked in raised position with maintenance devices.

See Maintenance Devices section.

^ WARNING



Pressurized fluids can penetrate the skin.

Hydraulic hoses can fail from age, damage and exposure.

Do not search for hydraulic leaks without body and face protection. A tiny, almost invisible leak can penetrate the skin, requiring immediate medical attention.

Use wood or cardboard to detect hydraulic leaks, never your hands.

^ WARNING



Spilled hydraulic fluid is slippery and may also present a fire hazard.

Clean up spilled hydraulic fluid.

Normally, scissor lifts will require very little maintenance. However, a routine maintenance program could prevent costly replacement of parts and/or downtime.

6.2.1 Every Day Or 10 Hours Of Operation

- Check reservoir fluid level.
- Check for fluid leaks.
- Check all hoses and electrical cords for cracks, abrasions, twisting, etc. Small leaks at connections can be remedied by tightening connections or replacing faulty component.
- Check that oil pressure does not exceed 3,000 psi.
- Check all pivot joints & roller bearings for noise and wear.
- Check overall condition of unit (i.e. bends, breaks, loose or missing screws, etc.).

6.2.2 Every Month Or 100 Hours Of Operation

- Check quality of oil. Replace if discolored (oxidized), cloudy, or otherwise contaminated. Do not overfill reservoir. Always use clean fluid.
- Inspect lift cylinder rods for scoring and leaking, wipe away any foreign material.
- Inspect all structural and mechanical components for cracked, or broken welds and any distortion caused by collision, overloading, or other misuse.
- Inspect snap rings/bolts at rollers & pivot points for proper retention & tightness.
- Inspect cylinder trunion pin for proper retention.

When all checks have been completed, start unit and operate through all functions. Inspect all components for signs of noise, vibration, erratic movement, and any other abnormal behavior.

6.2.3 Every Year Or 1000 Hours Of Operation

- Change oil and clean reservoir. Always use clean fluid. Never return fluid from drip pans, pit, etc. back to reservoir. Dispose of and handle used fluid as a hazardous material.
- If noise or vibration has been noticed, remove lift cylinder pins, pivot pins, and roller bearings. Inspect for wear and replace as necessary.
- Inspect all hydraulic hoses, replace any that show signs of wear or leaking.
- Replace all filters.
- Check for permanent mechanical deformation.

6.2.4 Oil Requirements

Follow recommendations below that apply to your application.

Environment (Ambient Temperature)	Recommended Oil
Indoor locations with variable temperatures: 30 - 100 degrees F.	5W 30 or 5W 40 Multiviscosity Motor Oil
Indoor locations with constant temperatures: 60 - 80 degrees F.	SAE 20 Motor Oil
Outdoor locations: 30 - 120 degrees F.	5W 30 or 5W 40 Multiviscosity Motor Oil
Outdoor locations: 10 degrees F below 0 to 100 degrees F.	5W 20 or 5W 30 Multiviscosity Motor Oil
Cold Storage Warehouse: 10 - 40 degrees F.	Contact local *Autoquip* Service Rep.

Note: All oils are detergent type.

6.2.5 Oil Capacity

Oil capacity varies between models. Capacity is between 2 quarts & 10 gallons.

NOTICE

Use approved fluids only. Use of unauthorized fluids may cause damage to seals and hosing.

Do Not Use:

- Automatic Transmission Fluid (ATF)
- Hydraulic Jack Oil
- Hydraulic Fluids
- Brake Fluids

6.3 General Maintenance

6.3.1 Hydraulic Cylinder Repair

6.3.1.1. Cylinder Plunger Removal

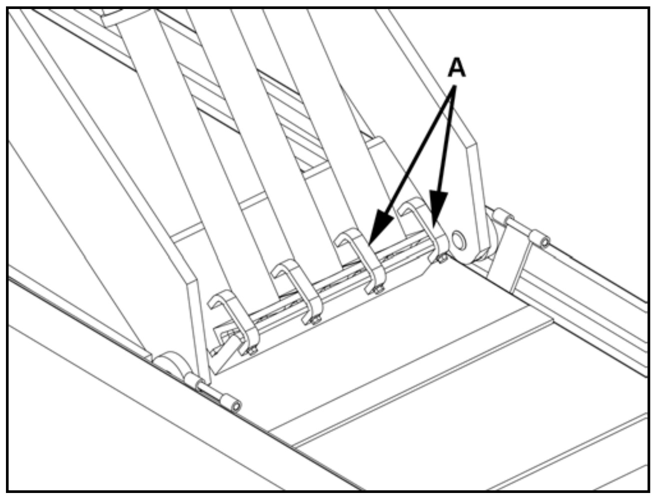
1. Raise lift to its full height and engage maintenance devices. See "Maintenance Devices".

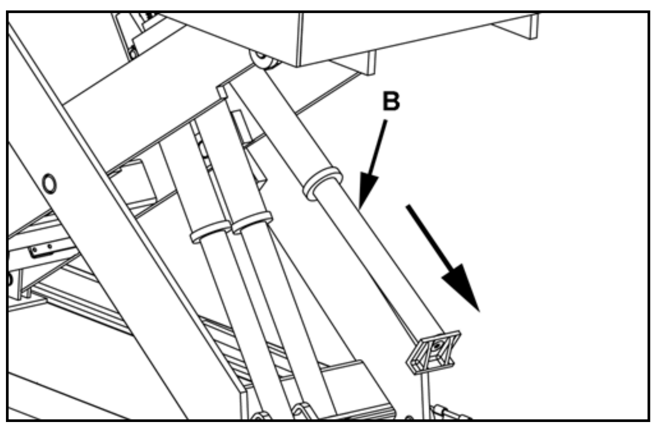
2. Disconnect electrical power to lift. Follow lock out-tag out procedure.

3. Disconnect cylinder hose at power unit end and insert into reservoir oil-fill hole.

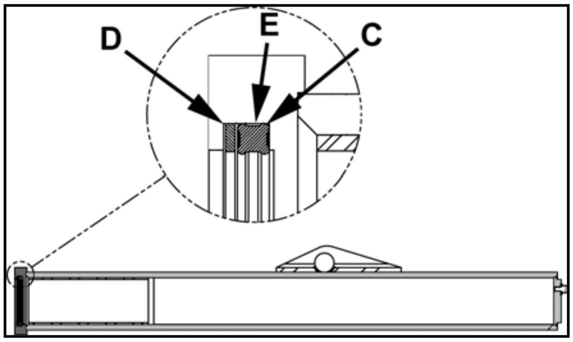
4. Remove thrust angle clips (AQ) from ram end of cylinder and force ram slowly back to its fully closed position to push oil back into reservoir.

5. Remove cylinder hose from reservoir fill hole and pull ram (B) all of the way out of cylinder. Support it carefully so that it does not drop when it clears cylinder end. Lay it down in a safe, clean place. Some oil may drip from the end of cylinder so have waste cloth or paper beneath lift to protect floor.





6.3.1.2. Replace Cylinder Seals



1. Remove sealing ring (C) and backup ring (D).

2. Use a bright light to inspect inner walls of barrel. Use a cylinder hone to remove any apparent nicks or scratches. Clean and flush the barrel after honing.

3. Inspect ram and seal groove (E) for nicks or scratches that could affect seal or barrel walls; remove as necessary.

4. Clean seal groove (E) thoroughly and install new seal and backup ring. Make sure backup ring is toward open end of cylinder.

6.3.1.3. Cylinder Ram Replacement

1. Clean ram of all foreign materials

2. Liberally lubricate the ram and seal with CLEAN grease or oil.

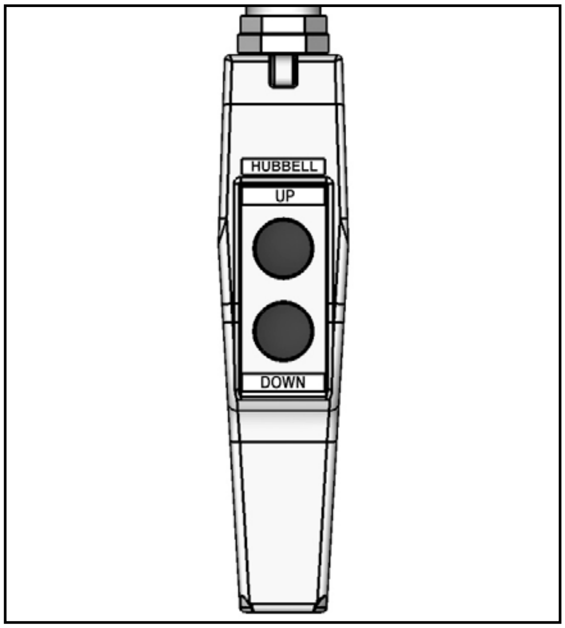
3. Insert ram carefully back into cylinder taking precaution against pinching or tearing seal ring.

4. Position cylinder foot and reinstall thrust angle clips (B).

5. Reconnect cylinder hose**.**

6.3.1.4. Placing Cylinder Back Into Service

Loctite PST #567 pipe thread sealant or equivalent is recommended. **Do not use Teflon tape.** Tape fragments may cause hydraulic system to malfunction.



1. Check that lift anchors are tight (when used). Check all pins and other mechanical and hydraulic connections.

2. Restore oil level. See oil recommendations in “Oil Requirements” section.

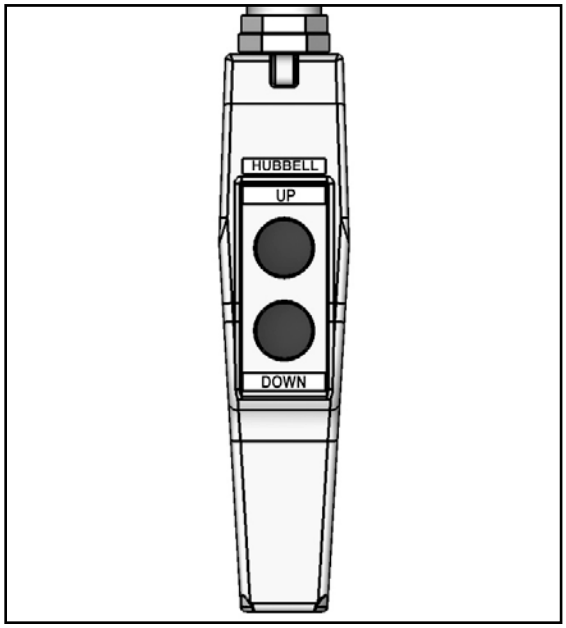
3. Turn on electrical power and press “UP” button. Loosen the bleeder plug at the top end of the ram casing and operate the pump to remove trapped air from the ram. When clear oil appears, tighten the plug and raise the lift slightly to remove the maintenance locks.

4. Lower lift completely and hold “DOWN” button for 60 seconds to allow air in cylinders to bleed back into reservoir.

5. Raise lift to 25 – 50% of full travel, then lower and hold “DOWN” button for an additional 60 seconds. Repeat procedure 8 – 10 times.

6. Clean oil fill breather cap.

6.3.2 Bleeding Air From System



1. Bleed air from system by raising lift to 50% of full travel, then lower completely.

2. Hold “DOWN” button for 60 seconds.

3. Repeat procedure 5-6 times. If this does not bleed all air from system, contact Autoquip.

4. Clean up any spilled oil. Dispose of spilled oil in an environmentally safe manner.

6.3.3 Hydraulic Velocity Fuse (HVF) Replacement

^ WARNING

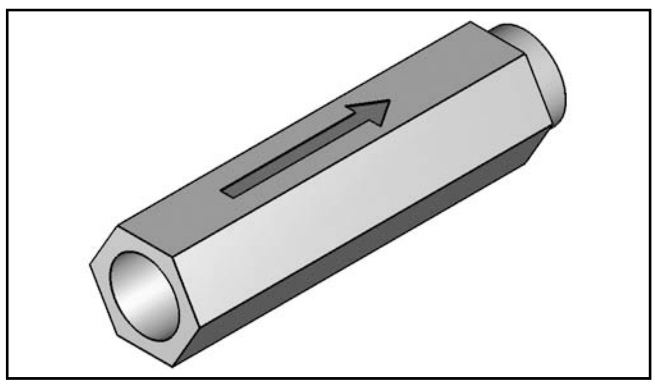
Prevent serious injury or death.

Never go under lift platform until load is removed and scissors mechanism is securely blocked in raised position with maintenance devices and hydraulic pressure is relieved.

The HVF is attached to elbow fitting in rod port of cylinder. Do not use a swivel fitting between HVF and cylinder. If HVF is installed improperly, it will not lock up in the event of a hydraulic line failure.

Velocity fuse is not repairable. Replace velocity fuse if defective.

1. Arrow on hydraulic velocity fuse indicates direction of oil flow restriction. Hydraulic velocity fuse must be installed with arrow pointing away from cylinder.



NOTICE

Do not use Teflon tape on hydraulic threaded connections. Tape fragments may damage hydraulic system.

2. Apply Loctite PST #567 pipe thread sealant or equivalent to threads and install fuse to cylinder with arrow pointing away from cylinder. Tighten fuse.

3. Fill reservoir to full mark if necessary with proper oil.

4. Check all fitting connections for hydraulic leaks and tighten as necessary.

5. Bleed air from system. See “Bleeding Air From System” in this section.

6.3.4 Hose Orientation

To prevent damage to cylinder hoses, it is necessary to establish a correct hose shape and pattern of movement as follows:

1. Raise lift to its full height and block securely. See “Maintenance Devices”.

2. Install one end of new hose to cylinder fitting.

3. Since hose is fixed at both ends, it is possible to put a twist in hose that will allow it to follow the same pattern each time lift is operated. This twist will allow hose to travel about half way between cylinder on right side and inner leg on right side.

4. Lower lift carefully and verify hose is free and clear of cylinder and inner leg assembly. If not, twist hose in direction necessary to clear any obstruction and tighten swivel fitting.

6.3.5 Up Stop Valve Adjustment

The up-stop valve is bolted to a mounting plate assembly that is permanently welded near the end of the scissors leg on the clevis end of the lift. A mechanical plunger is located on the end of the valve which, when depressed, blocks the flow of oil until physically released. An adjustable striker bolt is mounted to a plate that is welded to the base frame, which is also at the clevis end of the lift. As the lift travels upward, the scissors leg and up-stop valve assembly swings into the adjustable striker bolt until the up-stop plunger is depressed and thereby blocking the flow of oil to the lifting rams. Once blocked, any further oil pumped from the power unit will pass over the relief valve back to the tank.

NOTICE

Do not operate the power unit on relief for more than a few seconds. When on relief, the valve will make an audible squealing sound.

The up-stop system can be adjusted to modify vertical travel by:

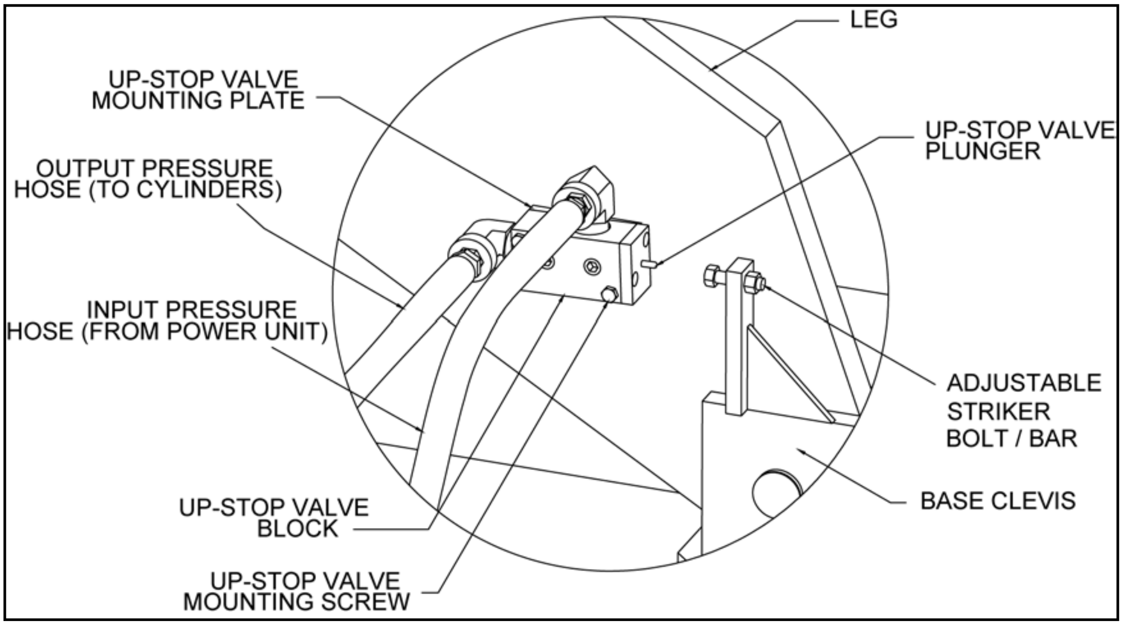
1. Loosen holding nuts on either side of adjustable striker bolt.

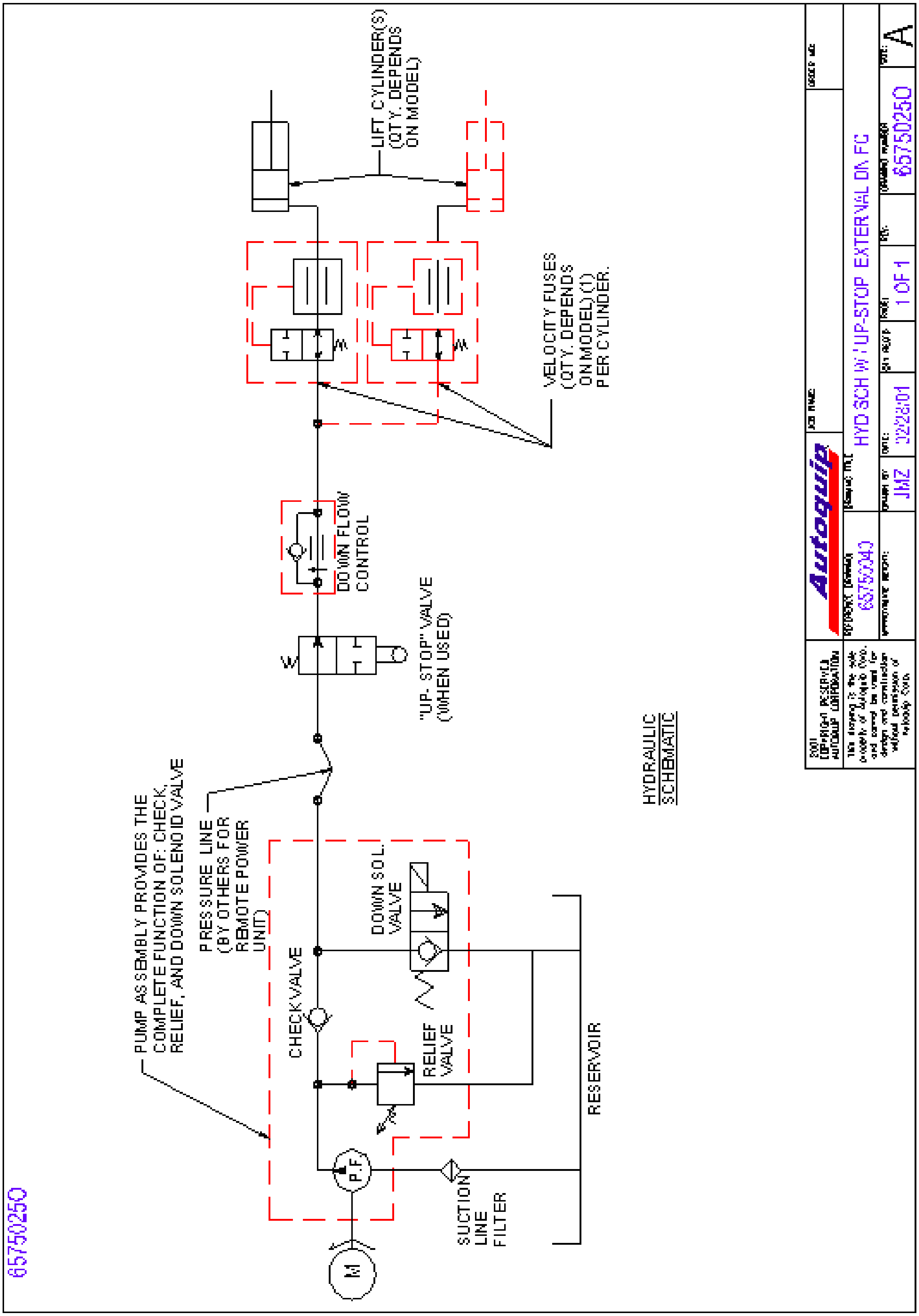
2. Screw adjustable striker bolt in towards plunger (to raise travel) or out (to shorten travel).

3. Retighten the holding nuts.

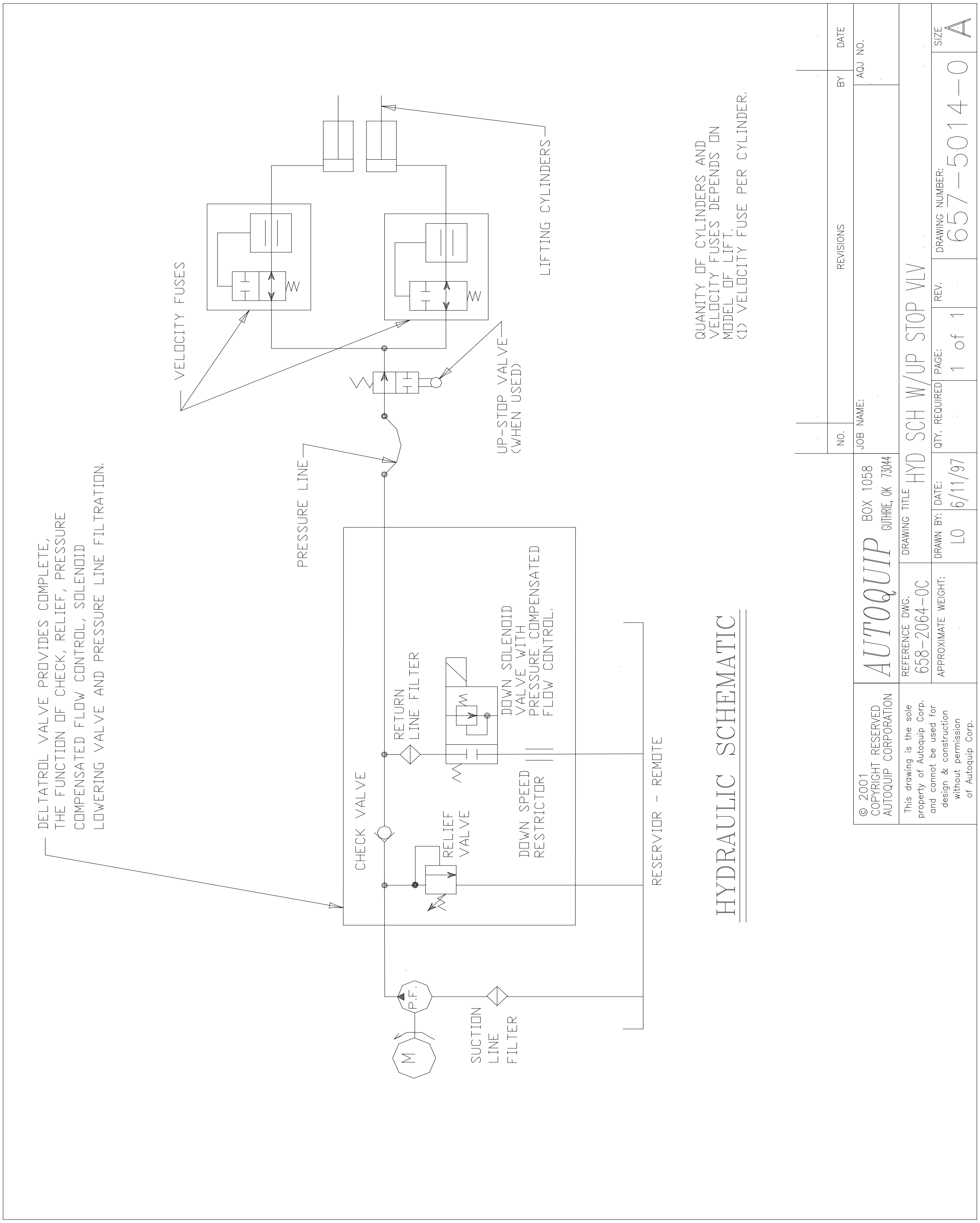
NOTICE

Setting the up-stop valve for travel beyond catalog limits will cause the lift to fully raise against physical stops and, if the pump is allowed to continue to run, cause irreversible damage to the lift structure.

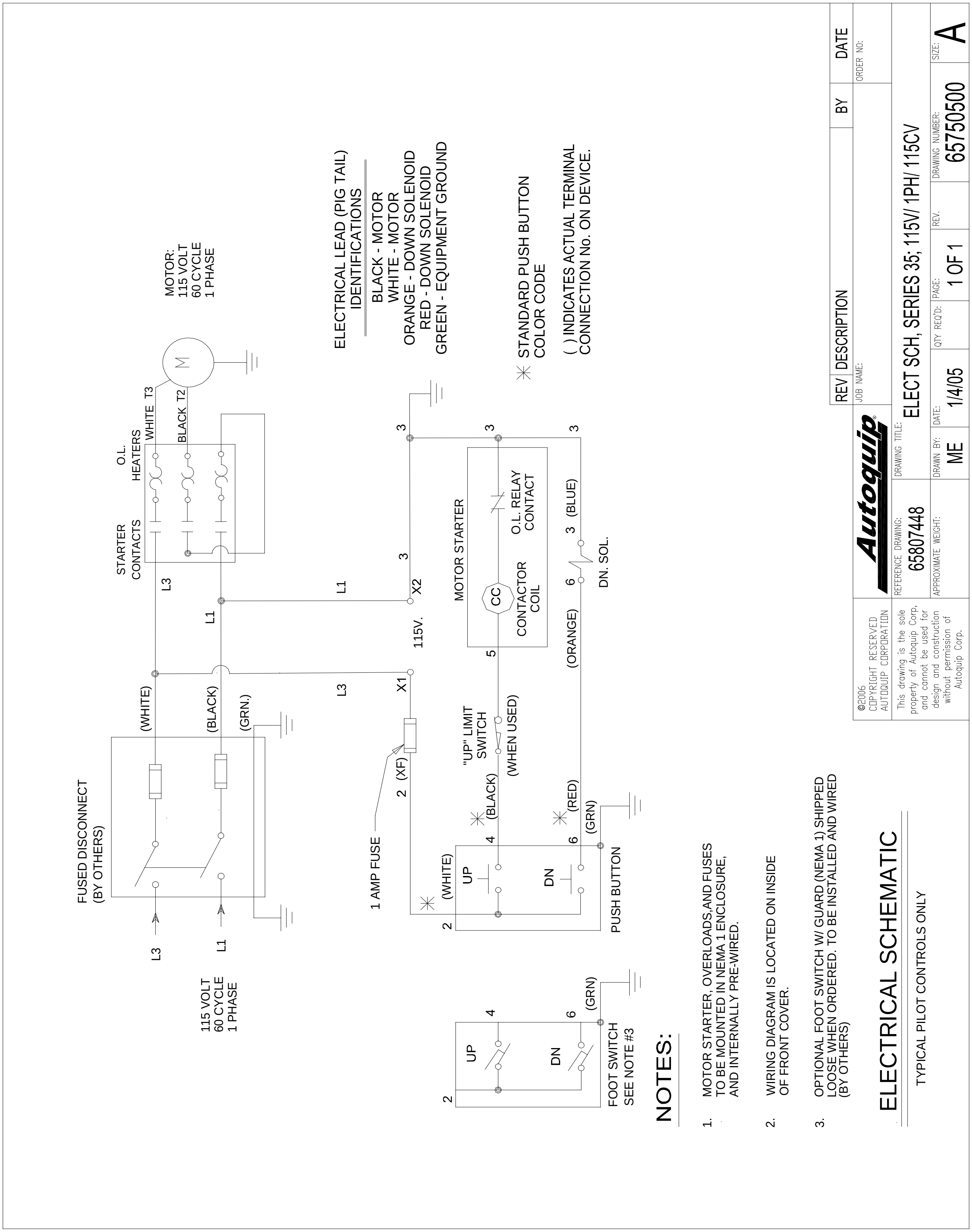




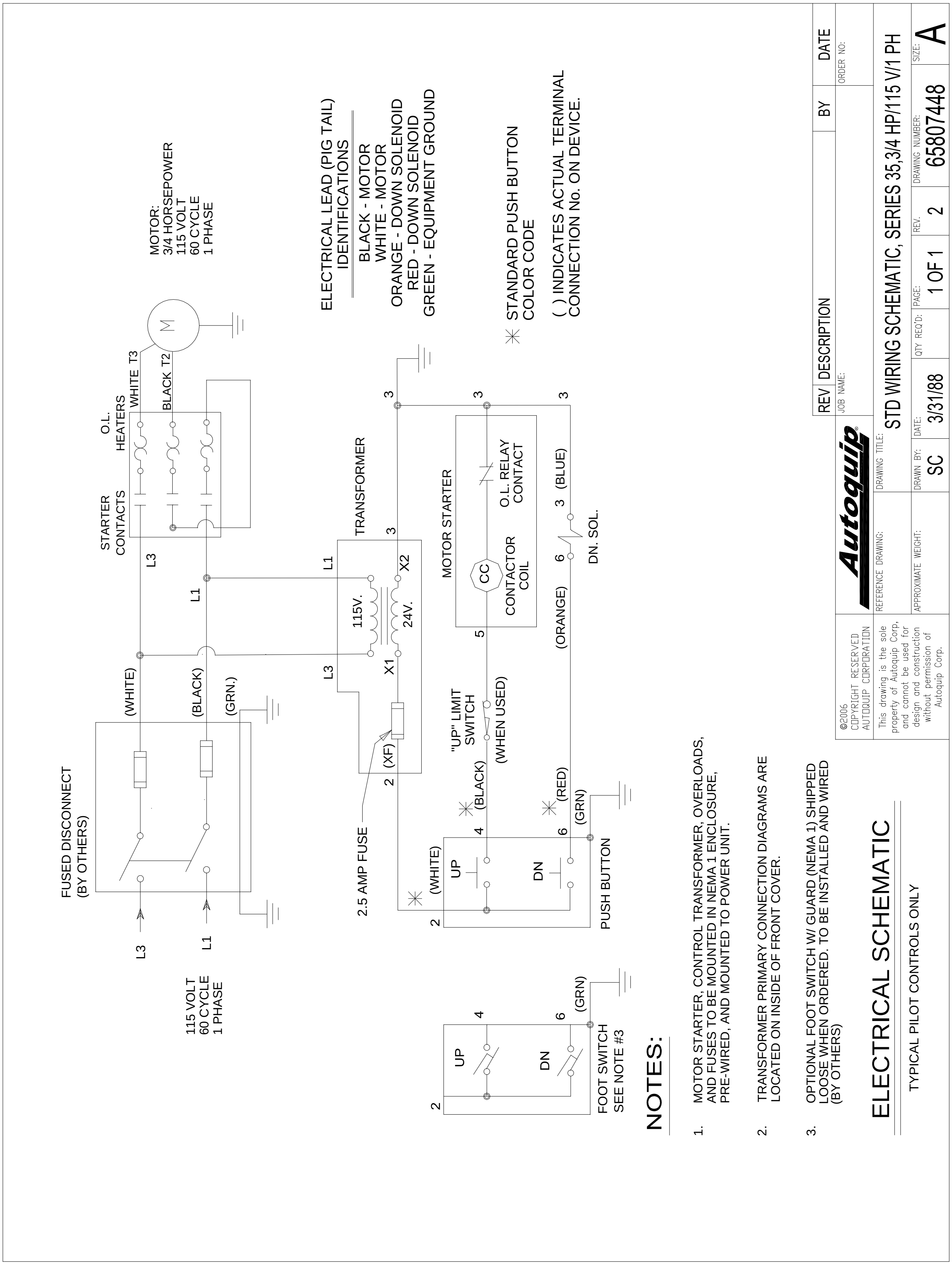
Hydraulic Schematic; Intermittent Duty Power Unit



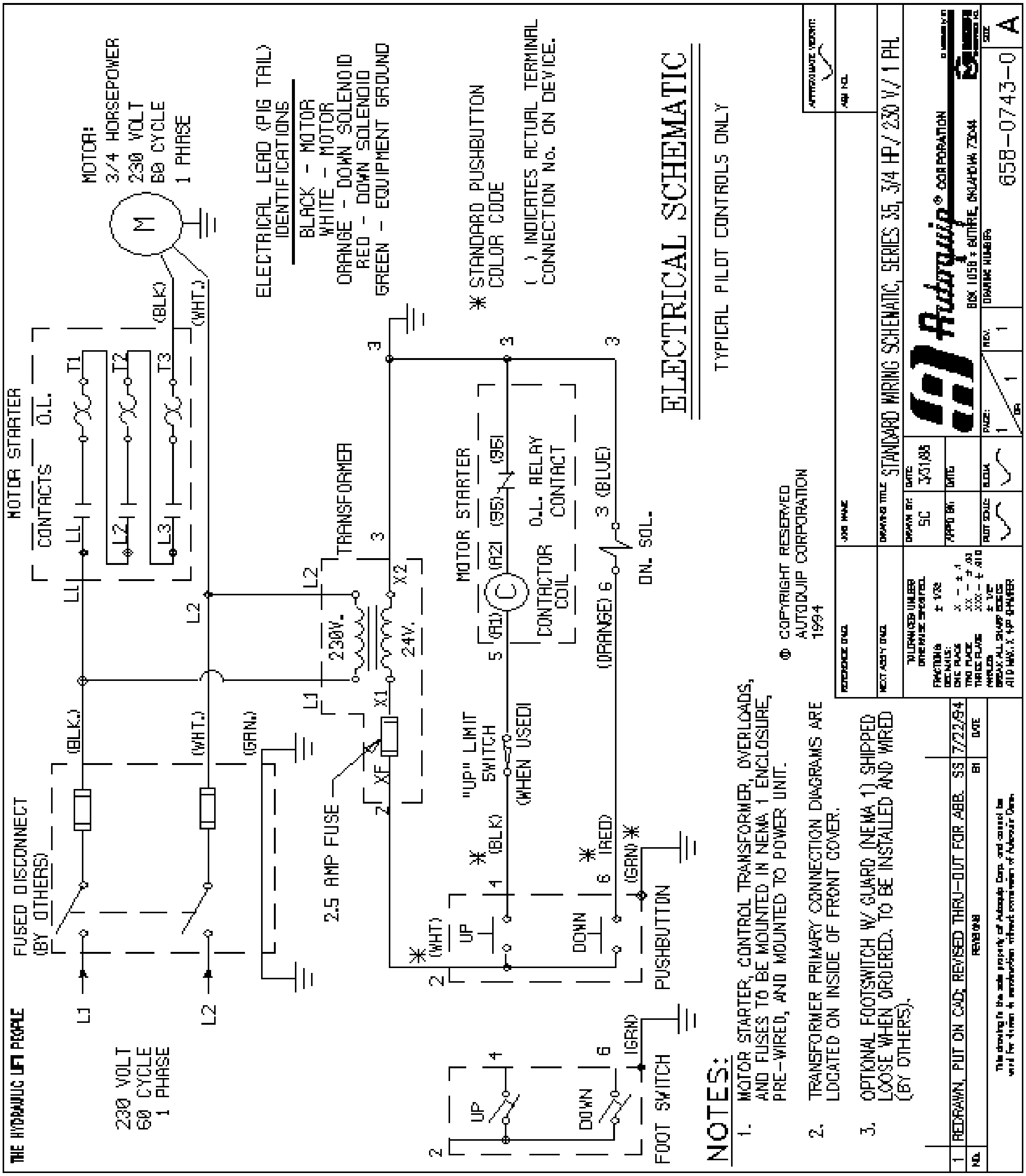
Hydraulic Schematic; Heavy Duty Power Unit



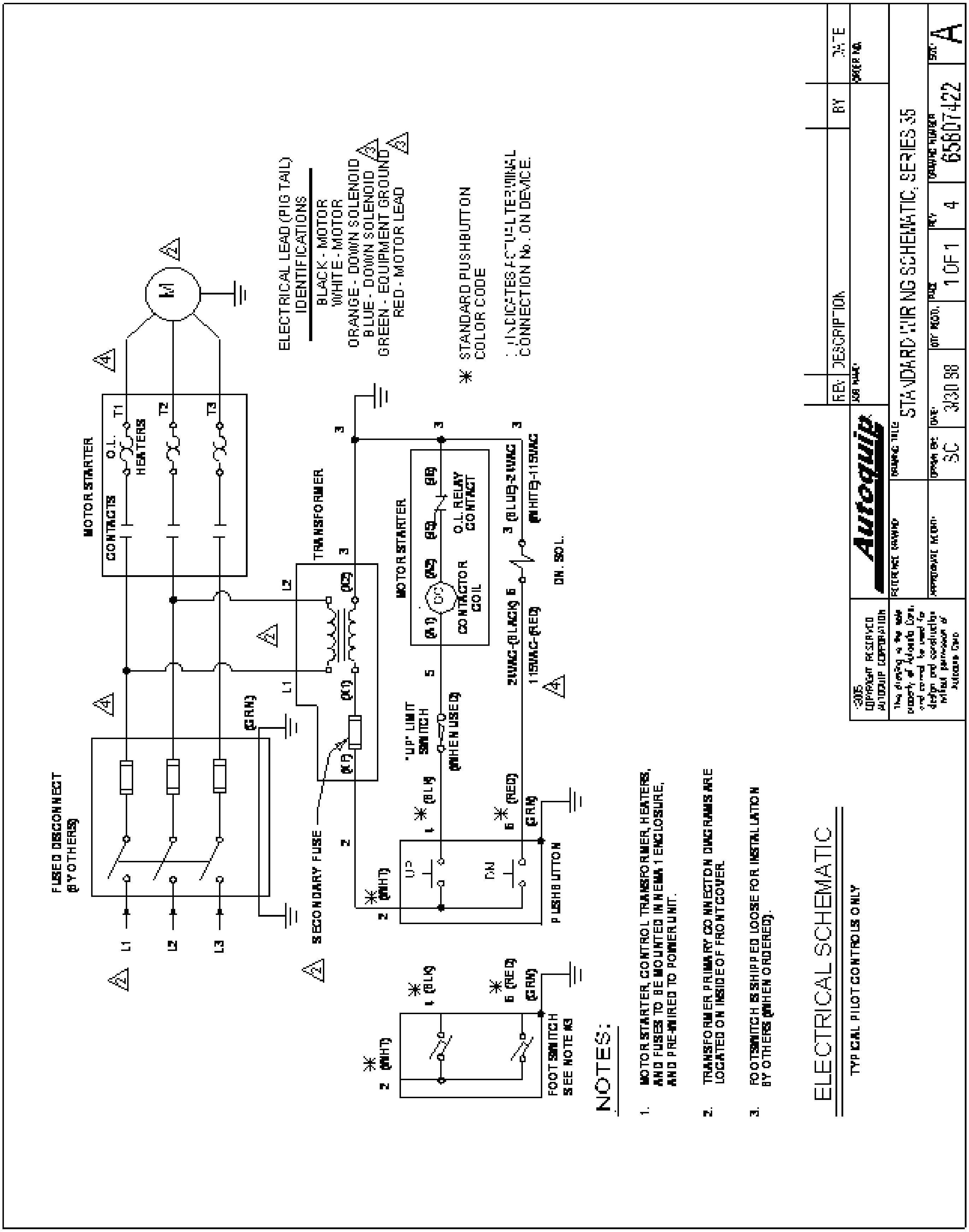
Electric Schematic; ¾ HP / 115V / 1 Ph / 115V Control



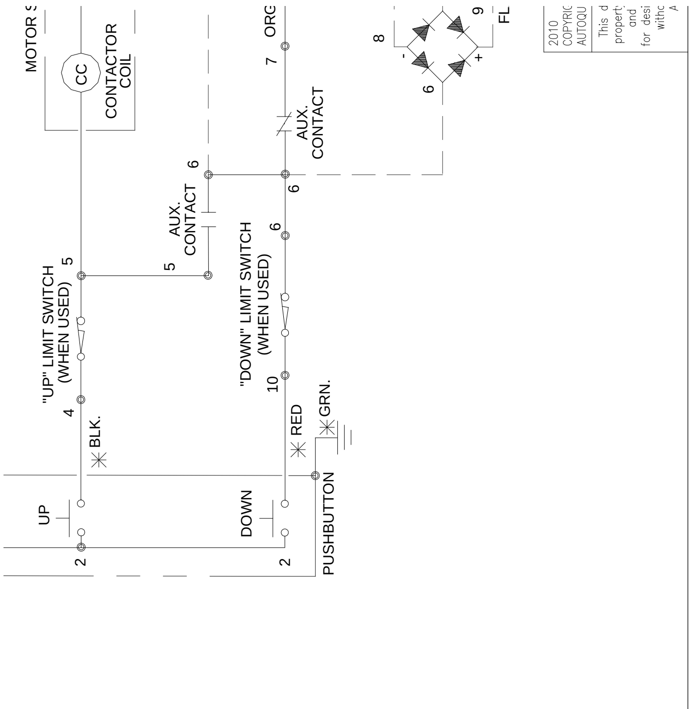
Electric Schematic; ¾ HP / 115V / 1Ph / 24V Control



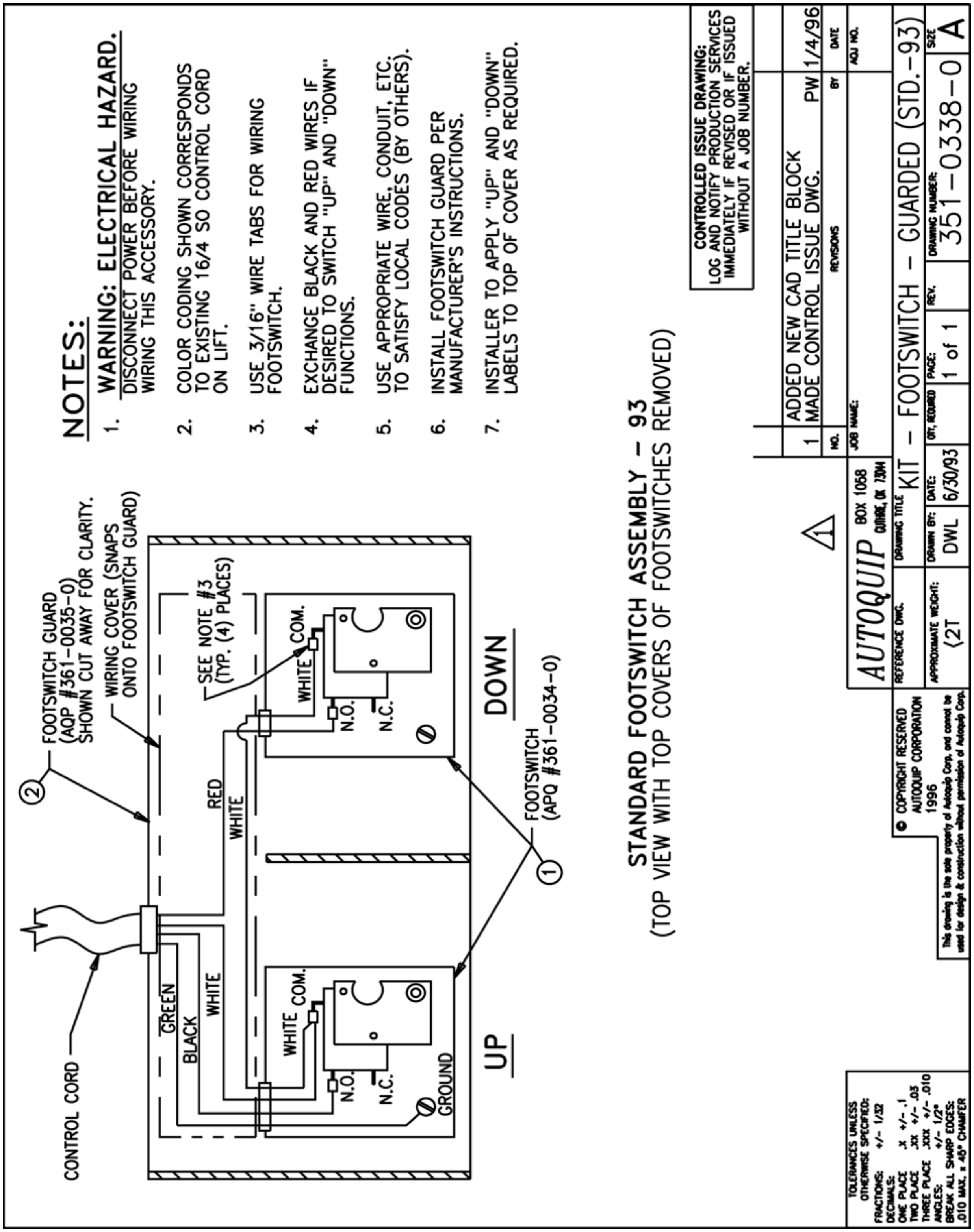
Electric Schematic; ¾ HP / 230V / 1Ph / 24V Control



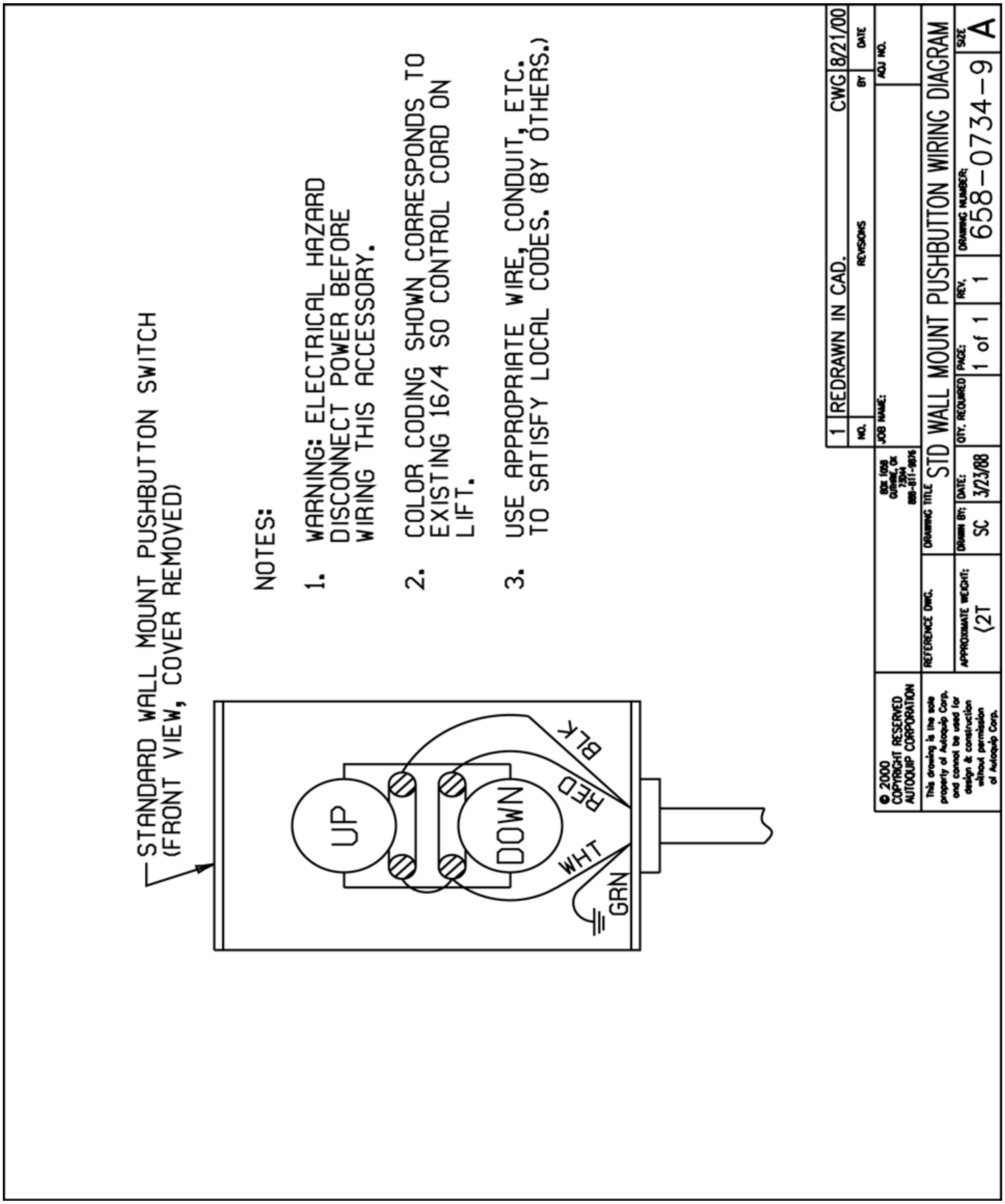
Electric Schematic; 1½ HP / 208-230-460V / 3Ph



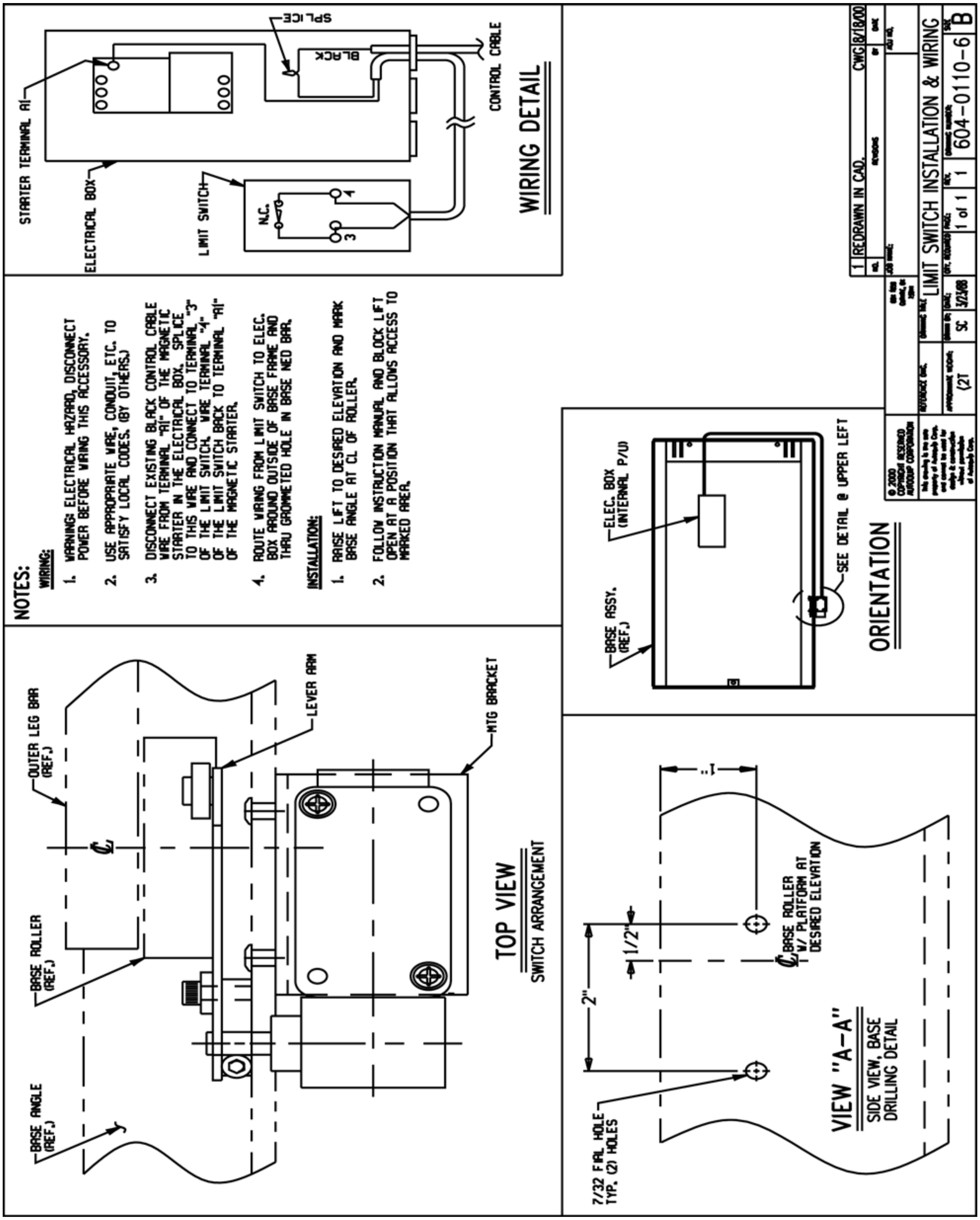
Electric Schematic; 5 HP / 208-230-460V / 3Ph



Guarded Footswitch Assembly



Pushbutton Assembly



Limit Switch Wiring Diagram

7. TROUBLESHOOTING

WARNING



Prevent serious injury or death.

Disconnect and/or lock out electrical supply to power unit prior to any maintenance being performed.

^ WARNING



Prevent serious injury or death.

Never go under lift platform until load is removed and scissors mechanism is securely blocked in open position.
Follow OSHA lock-out/tag-out procedure.

See "Maintenance Devices" section.

^ WARNING



Pressurized fluids can penetrate the skin.

Hydraulic hoses can fail from age, damage and exposure.

Do not search for hydraulic leaks without body and face protection. A tiny, almost invisible leak can penetrate the skin, thereby requiring immediate medical attention.

Use wood or cardboard to detect hydraulic leaks, never your hands.

^ WARNING



Spilled hydraulic fluid is slippery and may also present a fire hazard.

Clean up spilled hydraulic fluid.

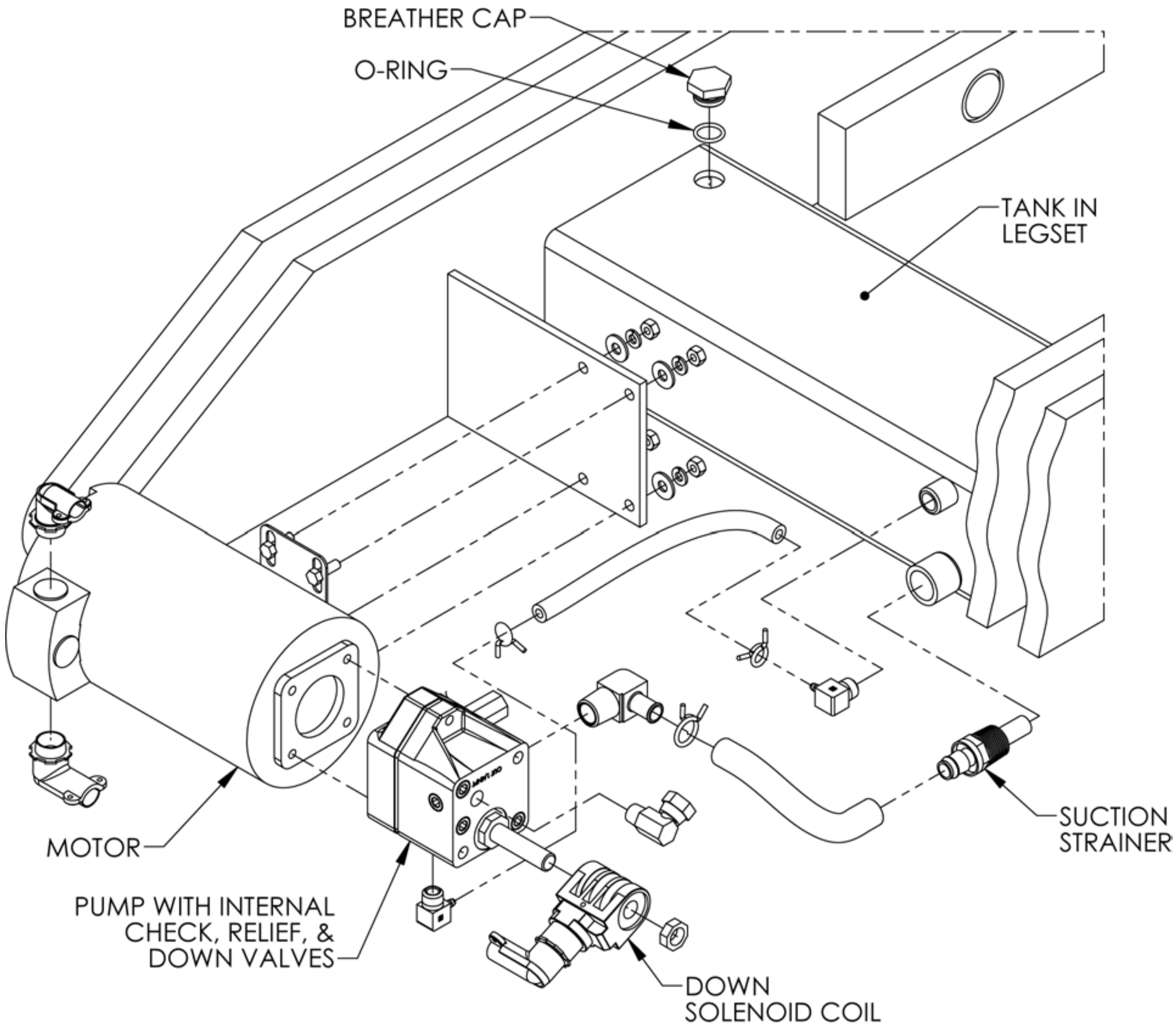
PROBLEM	POSSIBLE CAUSE AND SOLUTION
Lift Raises, Then Lowers Slowly.	Down solenoid may not be seating. Remove solenoid coil and check. If lift does not hold with solenoid coil removed, remove and clean down valve cartridge or replaced as necessary. Oil line, hose, or fitting may be leaking. Check and repair if necessary. Check valve in pump assembly may not be seating. This is indicated by pump shaft and motor turning backward on their own with no power applied. Generally, this condition can be heard. Replace pump assembly.
Lift Lowers Slowly.	Down solenoid is not operating properly due to debris or damage. Check for pinched tubing or hose. Where pipe is used, check for obstruction in line. Thick oil due to low ambient temperatures. Add or replace with lower weight oil that stays thin in cold conditions (5W-15, etc.) If foam is visible in tank oil, check for loose connection in suction line between pump and tank. Tighten connections.
Lift Does Not Raise.	Motor rotation for a 3-phase motor may be reversed. Reverse two motor electrical leads. Check for line or hose leak. Check for low oil in reservoir. Add specified oil as necessary. Load may exceed rating. See the Specifications section. Remove excess load. Suction screen may be clogged, starving pump. Remove and clean screen. Drain and replace oil. Suction line may be leaking air due to a loose fitting. Tighten as needed.

PROBLEM	POSSIBLE CAUSE AND SOLUTION
Lift Does Not Raise, Continued.	Breather holes in reservoir fill plug may be clogged. Remove and clean. Voltage may be too low to run pump with existing load. Check by measuring voltage at motor terminals, or as near as possible, while pump is running under load. Inadequate or incorrect wiring can starve motor when source voltage is ample. Correct as necessary. Down valve may be energized by faulty wiring or stuck open. Remove solenoid and check. Motor may be single phasing. Check wiring, fuses, etc. Pump may be seized if motor is humming or blowing fuses on overload protection devices. Remove pump. Pump can be rotated by hand unless seized. Check for cracks in housing. Down solenoid valve stem may be bent, causing valve to stick open. Replace down solenoid valve.

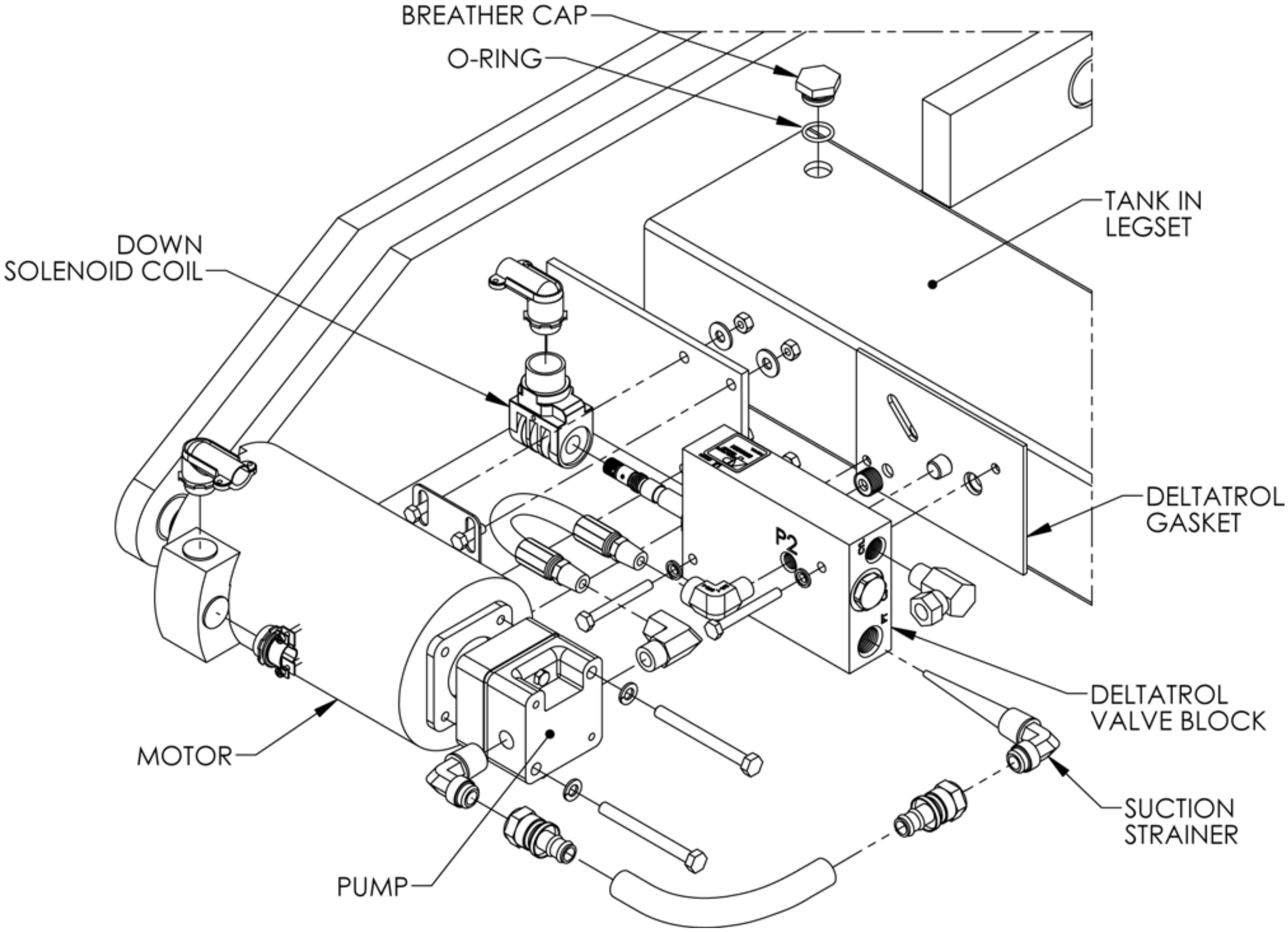
PROBLEM	POSSIBLE CAUSE AND SOLUTION
Lift Won't Lower.	Solenoid coil may be incorrectly wired, burned out, not rated for the voltage, or line voltage may be excessively low. Check voltage near coil. Velocity fuse may be locked. **Do not attempt to remove the velocity fuse.** The following steps should be followed: 1. Remove load from lift. Inspect all fittings, hoses, and other hydraulic components for leaks or damage. 2. If no leak or damage is noticed, attempt to pressurize lifting cylinder by pressing "UP" button on controller for a few seconds. Immediately release "UP" button and press "DOWN" button. If lift starts to lower, continue pressing "DOWN" button until lift is fully lowered. 3. If lift does not lower after trying Step 2, wait approximately 10 – 15 minutes for pressure in hydraulic system to equalize. Then, press "DOWN" button until lift is fully lowered. 4. Once lift is fully lowered, hold "DOWN" button for approximately 60 seconds to bleed air from system. This step may need to be repeated several times to fully remove air in system by raising the lift to 50% of its travel and lowering. If above steps do not correct problem, contact *Autoquip* to obtain instruction for further action.

PROBLEM	POSSIBLE CAUSE AND SOLUTION
Lift Seems Bouncy During Operation.	Lower lift to collapsed position and continue to hold “DOWN” button an additional 10-30 seconds to bleed air from cylinder. Do not confuse spongy or jerky operation with small surges that may occur when operating on rough or uneven floors. Check for oil starvation.
Motor Labors Or Heats Excessively.	Voltage may be low. Check voltage at motor terminals while pump is running under load, not at line source or while pump is idling. Inadequate wiring can starve motor even when source voltage is ample. Most of *Autoquip’s* standard motors are rated for intermittent duty. If a single-phase motor is being run more than 15 – 20 motor starts per hour, or a 3-phase motor more than 200 starts per hour, the problem may be motor over-heating. Running against relief pressure unnecessarily due to over loaded lift or hitting physical stops. Failure to observe wiring diagram on nameplate for proper voltage connections. Pump may be binding from oil starvation, which develops high internal heat. Check for low oil level or clogged breather holes in reservoir fill plug. Pump can be damaged by oil starvation.

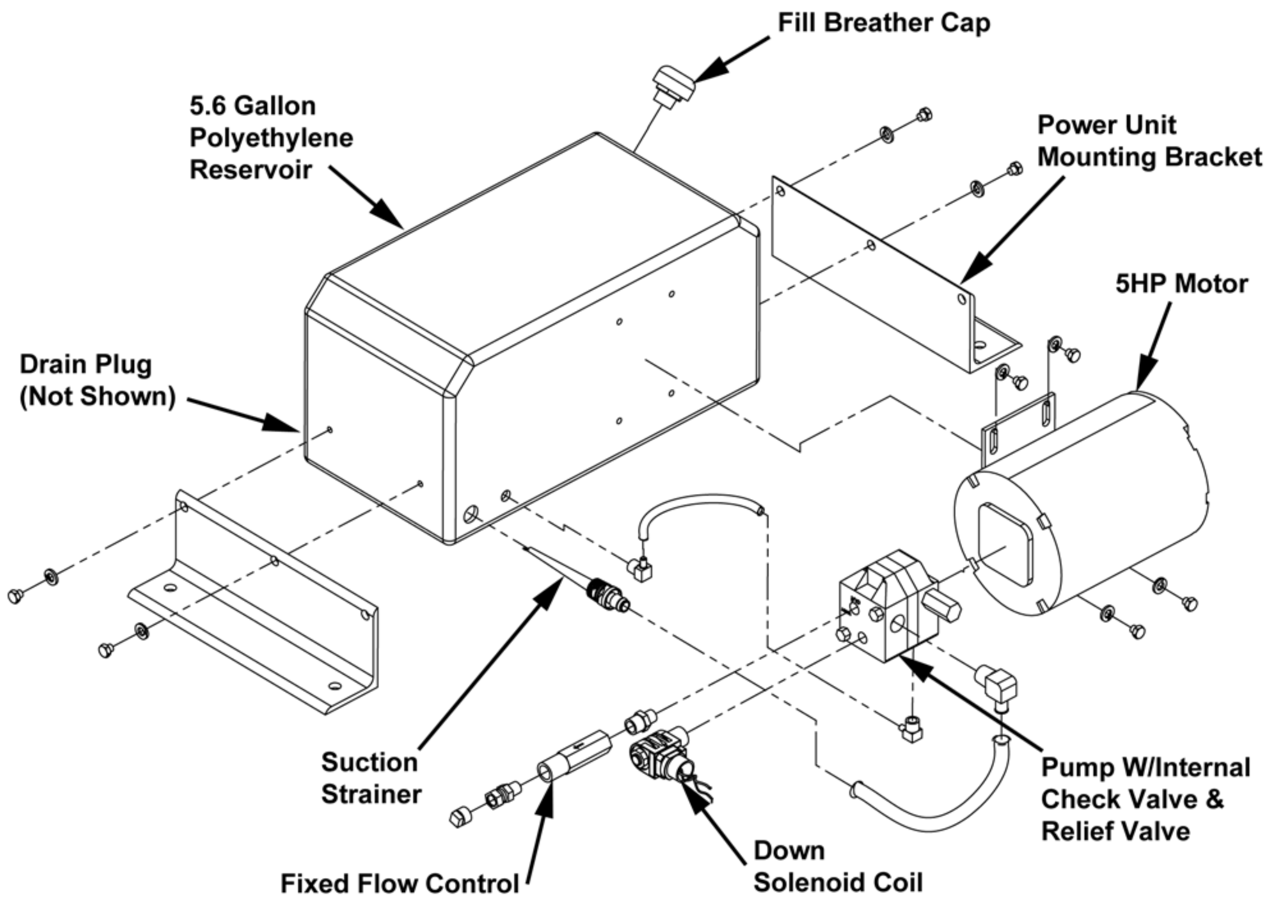
8. PARTS LISTS



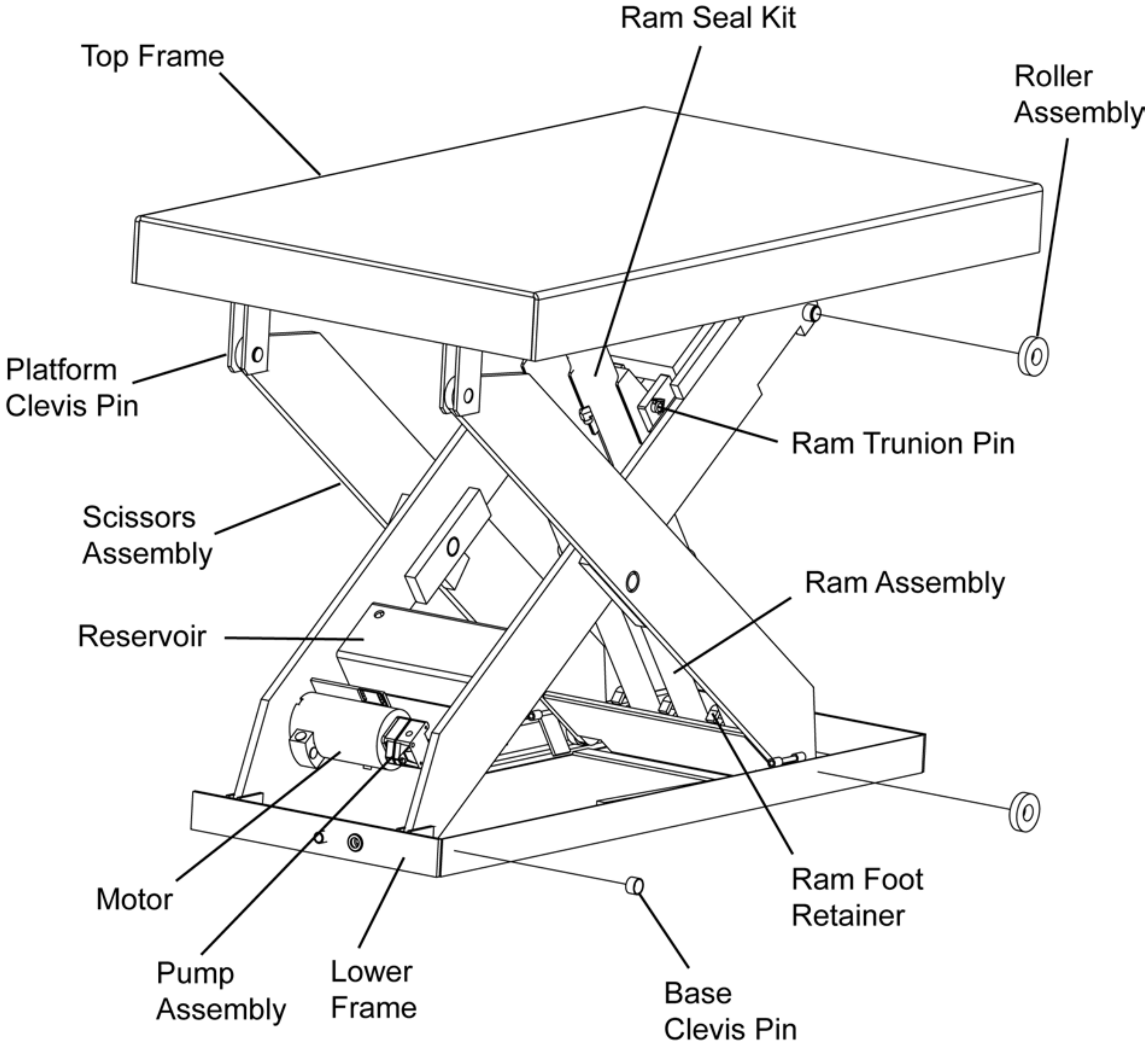
1.5HP Intermittent Duty - Pump with Internal Relief/Check/Down Valves



1.5HP Intermittent Duty - Pump with External Relief/Check/Down Valves



5HP Intermittent Duty Power Unit



Titan Lift Parts Diagram

Part #	Description
20022158	14DU12 Bushing (Ram)
20022851	18DU12 Bushing (Legs at Platform/Base Clevis)
20022877	18DU16 Bushing (Legs at Platform/Base Clevis)
20023966	24DU24 Bushing
52500154	Pin, Ø1-1/8" x 1-3/4"L, (2) Ring Groove (Base/Platf Clevis)
52500254	Pin, Ø1-1/8" x 1-3/4"L, (1) Ring Groove (Roller)
52600269	Roller Assembly, Ø3" x 3/4" Thick, With Bushing
24004509	Washer, 1/64" Thick for Ø1-1/2" Pin
24012502	Washer, 1/16" Thick for Ø1-1/2" Pin
24002008	Washer, 1/64" Thick for Ø1-1/8" Pin
24001000	Washer, 1/64" Thick for Ø7/8" Pin
24008005	Washer, 1/32" Thick for Ø7/8" Pin
45400082	Retaining Ring for Ø1-1/8" Pin
45400108	Retaining Ring for Ø1-1/2" Pin
52500261	Pin, Ø7/8" x 15-1/4"L, (2) Hole (Trunnion)
52500352	Pin, Ø7/8" x 6-7/8"L, (2) Hole (Trunnion)
27000322	Roll Pin for Trunnion Pins
42300005	Ram, Ø2-1/4" x 14-1/4"Stroke, 1/4" Port
42300013	Ram, Ø2-1/4" x 9-3/8"Stroke, 1/4" Port
42300021	Ram, Ø2-1/4" x 20"Stroke, 1/4" Port
41401820	Foot & Rod Assembly for 14-1/4" Ram
48101830	Foot & Rod Assembly for 9-3/8" Ram
48101840	Foot & Rod Assembly for 20" Ram
48200018	Ram Case Assembly for 14-1/4" Ram
48200026	Ram Case Assembly for 9-3/8" Ram
48200034	Ram Case Assembly for 20" Ram
48350052	Foot for Ram
22040935	FHSCS, 3/4-10 x 1-1/2", Nylok, For Ram Foot
45500246	Seal Kit for Ram
45901014	Bleeder Screw Seal for Ram
22300313	Bleeder Screw For Ram
44810026	Ram Retainer Bar, Formed
34100388	Limit Switch, (1)NO & (1)NC
34100470	Lever Arm for Limit Switch
41501776	Hydraulic Flow Control Valve, 1-1/2 GPM, 3/8 FNPT
41502840	Hydraulic Flow Control Valve, 3 GPM, 3/8 FNPT
41800640	Hydraulic Velocity Fuse, 1-1/2 GPM, 1/4 FNPT
41800541	Hydraulic Velocity Fuse, 2 GPM, 1/4 FNPT
41800566	Hydraulic Velocity Fuse, 2-1/2 GPM, 1/4 FNPT
41800681	Hydraulic Velocity Fuse, 3 GPM, 3/8 FNPT
41800517	Hydraulic Velocity Fuse, 3-1/2 GPM, 1/4 FNPT
41800591	Hydraulic Velocity Fuse, 6-1/2 GPM, 3/8 FNPT
41000191	Up-Stop Valve
46000022	Hose, 1/4" x 9" with fittings
46000048	Hose, 1/4" x 14" with fittings
46000055	Hose, 1/4" x 18" with fittings
46000071	Hose, 1/4" x 24" with fittings
46000089	Hose, 1/4" x 30" with fittings
46000097	Hose, 1/4" x 36" with fittings
46000105	Hose, 1/4" x 48" with fittings

Part #	Description
46000121	Hose, 1/4” x 60” with fittings
60900032	T-Handle W/O Wheel for Transport Base
60950003	T-Handle W/ Wheel for Portability
20038006	Wheel For Portability T-Handle, Ø5" x 1-1/2"W
20038279	Wheel For Portability, Ø5" x 2-1/2"W
52504800	Pin For Portablilty Wheel, Ø1-1/4 x 4"L W/ Tab

Part #	3/4HP & 1-1/2HP Internal & Remote Power Units
30000020	Motor, 3/4 HP, 115-230V, 60Hz, 1 PH, 1800 RPM, Tang Shaft
30300016	Motor, 1-1/2 HP, 208-460V, 60Hz, 3 PH, 3600 RPM, Tang Shaft
40200650	Pump, 1.4 GPM@3450 RPM W/ Down Valve
40150055	Pump, 0.9 GPM@3000 RPM (For Deltatrol Block)
20001137	Tongue & Groove Coupling (Between MTR & Pump)
64200603	Reservoir, Plastic, 3-3/4" x 5-1/2" x 15-1/4" (Remote Only)
47900006	Breather Plug, 1/2 MNPT
41050140	Suction Strainer For Plastic Reservior
41001220	Deltatrol II Valve Block, Includes Down Valve & 1-1/2 GPM Flow Control
41050055	Gasket For Deltatrol Block, 4" x 6" x 1/8" Thick, Small Holes
41050147	Suction Strainer For Deltatrol, 90°

Part #	Remote 5hp Intermittent Duty Power Unit
30600613	Motor, 5 HP, 208-460V, 60Hz, 3 PH, 3600 RPM, Tang Shaft
40200655	Pump, 1.4 GPM@1800 RPM, Without Solenoid Coil
64201020	Reservoir, Plastic, 9" x 9" x 18"
47701640	Breather Cap, 1/2 MNPT
41502840	Hydraulic Flow Control Valve, 3 GPM, 3/8 FNPT
41050139	Suction Strainer

Part #	Remote 5hp Heavy Duty Power Unit
30600449	Motor, 5 HP, 208-460V, 60Hz, 3 PH, 3600 RPM
40300162	Pump, 2.25 GPM@1800 RPM
47302905	Mounting Bracket, Motor/Pump
45975497	Gasket, 8-5/8"OD x 6-1/4" ID x 1/16" Thick, With (4) Holes
64000813	Reservoir, Steel, 16" x 16" x 10"
47700208	Filler/Breather Cap
22890164	Rivet for Filler/Breather Cap
20000030	Jaw Coupling, 7/16" Bore
20000154	Jaw Coupling, 1-1/8" Bore
20000162	Coupling Spider, Buna N
41001210	Deltatrol II Valve Block, Includes Down Valve & 4-1/2 GPM Flow Control
41050048	Gasket for Deltatrol Block, 4" x 6" x 1/8" Thick, Large Hole
46100900	Hose, 3/8 x 14", 1/4 MNPTS X 3/8 MNPTS
47700075	Suction Strainer, 3/4 FNPT

Part #	Universal Power Unit Components
46000410	1/4" ID x 1/2" OD Push-On Hose (Specify Length)
46200267	1/2" ID x 3/4" OD Push-On Hose (Specify Length)
28080700	Spring Clamp for 1/2" OD Hose
28080695	Spring Clamp for 3/4" OD Hose
36202161	Pendant UP/DN Pushbutton on 20' Cord
35194090	Wall Mount UP/DN Pushbutton on 20' Cord
35194091	Wall Mount UP/DN Pushbutton (With Magnet) on 20' Cord
35103380	Foot Switch and Guard
32701290	Down Solenoid Coil, 24 VAC (Down Valve on Pump)
32701300	Down Solenoid Coil, 115 VAC (Down Valve on Pump)
32701350	Down Solenoid Coil, 24 VDC (Down Valve on Pump)
32701370	Down Solenoid Coil, 120 VAC (Down Valve on Deltatrol Block)
32701380	Down Solenoid Coil, 24 VAC (Down Valve on Deltatrol Block)
32701390	Down Solenoid Coil, 24 VDC (Down Valve on Deltatrol Block)
32701400	Connector For DC Solenoid Coil (For Coil 32701390)
35104150	Control Panel, 3/4 HP, 115V, 1PH, 115VAC Controls
35107910	Control Panel, 3/4 HP, 115V, 1PH, 24VAC Controls
35109950	Control Panel, 3/4 HP, 115V, 1PH, 24VDC Controls
35104140	Control Panel, 3/4 HP, 208/230V, 1PH, 115VAC Controls
35108050	Control Panel, 3/4 HP, 208/230V, 1PH, 24VAC Controls
35108070	Control Panel, 1-1/2 HP, 208/230V, 3PH, 115VAC Controls
35107980	Control Panel, 1-1/2 HP, 208/230V, 3PH, 24VAC Controls
35107950	Control Panel, 1-1/2 HP, 460V, 3PH, 115VAC Controls
35107990	Control Panel, 1-1/2 HP, 460V, 3PH, 24VAC Controls
35108640	Control Panel, 1-1/2 HP, 460V, 3PH, 24VDC Controls
35150145	Control Panel, 5 HP, 208/230V, 3PH, 115VAC Controls
35150140	Control Panel, 5 HP, 208/230V, 3PH, 24VAC Controls
35150155	Control Panel, 5 HP, 460V, 3PH, 115VAC Controls
35150150	Control Panel, 5 HP, 460V, 3PH, 24VAC Controls
35152720	Control Panel, 5 HP, 460V, 3PH, 24VDC Controls